

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- Coloured covers /
Couverture de couleur
- Covers damaged /
Couverture endommagée
- Covers restored and/or laminated /
Couverture restaurée et/ou pelliculée
- Cover title missing /
Le titre de couverture manque
- Coloured maps /
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) /
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations /
Planches et/ou illustrations en couleur
- Bound with other material /
Relié avec d'autres documents
- Only edition available /
Seule édition disponible
- Tight binding may cause shadows or distortion
along interior margin / La reliure serrée peut
causer de l'ombre ou de la distorsion le long de la
marge intérieure.
- Additional comments /
Commentaires supplémentaires:

Continuous pagination.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated /
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies /
Qualité inégale de l'impression
- Includes supplementary materials /
Comprend du matériel supplémentaire
- Blank leaves added during restorations may
appear within the text. Whenever possible, these
have been omitted from scanning / Il se peut que
certaines pages blanches ajoutées lors d'une
restauration apparaissent dans le texte, mais,
lorsque cela était possible, ces pages n'ont pas
été numérisées.

THE

MONTREAL MEDICAL JOURNAL.

Vol. XXXIII.

MAY, 1904.

No. 5.

SOME OBSERVATIONS ON THE SURGICAL TREATMENT OF CHRONIC AND ACUTE NEPHRITIS.

BY

A. PRIMROSE, M.B., C.M., Edin., M.R.C.S., Eng.

Professor of Anatomy and Associate-Professor of Clinical Surgery in the
University of Toronto.

Operative measures have been adopted by a large number of surgeons in the treatment of chronic Bright's disease during the past two years, and in a limited number of instances relief from acute nephritis too has been attempted by surgical means. A determined effort has been made to test the efficacy or otherwise of surgical intervention, more particularly in the chronic forms of nephritis. There is by no means unanimity of opinion among the members of the medical profession regarding this question, and some would challenge the proposition that there is any significance in the results which have been obtained by operation in those cases which have been recorded. It would appear, however, that in the light of recent clinical experience some very obvious conclusions may be arrived at, and incidentally it may be remarked we have made considerable advance in the surgery of the kidney as the direct outcome of the proposition to treat chronic Bright's disease by surgical means.

A considerable amount of investigation too has been carried on in the laboratory, and a marked stimulus has been given to experimental work not only in determining the results produced by removal of the kidney capsule and by other means of surgical interference which have been suggested, but also in a renewed effort to elucidate the vexed problem of the excretory function of the kidney in health and disease. It must be frankly acknowledged by those who have had any experience in this new method of treatment that we are still in the dark when we attempt to explain the results of our operative interference. It must with equal frankness be admitted that a most profound effect is produced upon the course of the disease and the general health of

Read before the Montreal Medico-Chirurgical Society, 15th April, 1904.

the patient in many instances where surgical interference has been employed. One would urge the importance of recording carefully all cases coming under observation, and a faithful effort should be made to appreciate the true significance of the various clinical phenomena which present themselves.

A little more than two years ago I wrote a paper reporting a case of chronic Bright's disease¹ in which I had operated. I have no doubt the life of this patient was saved at the time, and the subsequent course of the disease was somewhat remarkable. The case was as follows:

A boy, 10 years of age, came under my care in the Hospital for Sick Children in November, 1901, suffering from chronic nephritis. The history of the onset of his illness was obscure, but for six months before he came under my observation he had general anasarca and ascites. During that time paracentesis abdominis had been performed seven times. On admission to the hospital the urine contained 1.6 per cent. of albumin, the abdomen was enormously distended with fluid and there was great swelling of the face and oedema of the extremities. Paracentesis abdominis was performed and 180 ounces of fluid drawn off. The urine, in addition to albumin, contained numerous hyaline, granular and epithelial casts. On November 21st I cut down on the right kidney in the loin and found it much enlarged. I made an incision two inches long through the capsule and subsequently drained the lumbar wound for a fortnight. As a result of the operation the amount of urine secreted in 24 hours gradually increased from 14 ounces in 24 hours to 40 ounces on the seventh day after the operation, whilst the percentage amount of albumin diminished from 1.6 to .8 per cent. The child's condition did not continue to improve, however, and it appeared that permanent relief of symptoms had not been secured. One was encouraged by the profound effect produced upon the condition of the patient by the simple operation upon the right kidney of splitting the capsule, and it was therefore thought justifiable to perform a more extensive operation upon the left kidney. Accordingly, on the 20th December, 42 days after admission to the hospital, I cut down upon the left kidney and removed the capsule in its entirety. The child was critically ill for some days subsequently, and unfortunately contracted pneumonia towards the end of the first week after the operation. We despaired of his life, but he gradually recovered from the pneumonia and the renal symptoms underwent a most remarkable abatement, so that whilst the amount secreted in 24 hours rose to 44 ounces, the amount of albumin diminished to .03 per cent., in fact there remained little more than a mere trace of

albumin, and the casts were also very largely diminished in number. The general œdema vanished and the ascitic fluid was reabsorbed and disappeared. Shortly after this the child left the hospital in apparent good health, having gained remarkably in weight and looking the picture of robust health.

Such was the history of the case as I placed it on record in my previous paper on this subject. The case has been quoted by other writers as a success attained by operation on the kidneys in chronic Bright's disease. I am glad to have this opportunity of recording the subsequent history of the patient. The history of the patient was recorded up to the end of January, 1902, at which time the albumin had dropped to .025 per cent. with a specific gravity of 1011. A few red blood cells and a few casts were visible under the microscope. The patient was kept under observation during the spring and summer of 1902. The urine was tested from time to time, but there was very little variation in the analytical results. On April 1st (4 months after operation), it was noted that there was a mere trace of albumin, and there were no casts found. He gained in weight remarkably so that whilst at the end of February he weighed 43½ lbs., his weight on July 9th was 62½ lbs., representing a gain of nearly 20 lbs., or nearly 50 per cent. of his body weight from the time of the first record. He was discharged from the hospital on September 18th, 1902, in excellent general health, the urine showing very slight departure from the normal. He remained in excellent health without any medicinal treatment or restriction of diet until a year and nine months after operation.

He was readmitted on September 21st, 1903, one year from the date of his previous discharge, with an acute attack of nephritis. He complained of pain in the back and had swelling of the legs, puffiness of the face and some ascites. He passed 25 ounces of urine in 24 hours containing .1 per cent. of albumin and 2.5 per cent. of urea. He was freely purged and put on a milk diet with normal saline rectal injections and hot stupes. He responded promptly to the treatment so that in a few days the œdema and ascites disappeared; the albumin remained about the same. For two months there was not much alteration in his condition. The percentage amount of albumin varied from .056 to .228 per cent. He was discharged from the hospital on November 14th, 1903. A fortnight afterwards he had another attack and he was admitted to the hospital for the third time with a relapse presenting general œdema and other symptoms as in the previous attacks. Since his last discharge from hospital he had been living at the Barnardo Home. It was thought now that as the right kidney

had previously been operated upon by splitting the capsule and not by decapsulation, possibly some further benefit would be derived from decapsulation on the right side.

Accordingly, on December 11th, 1903, two years after the first operation, I cut down on the right kidney, the capsule of which I had previously split. The perirenal fatty capsule appeared normal and was dealt with in the usual way. The postero-external margin of the kidney was found adherent to the posterior abdominal wall by an adhesion as thick as the little finger and of very firm consistence. The adhesion was so firm that the kidney substance was torn in the effort to free it. The capsule was then stripped off as far as the pelvis and the greater part of it snipped off by means of scissors. The kidney was enlarged, one would say about half as large again as normal; it did not, however, appear to be tense within its capsule. Within a week all signs of œdema had disappeared and the patient's general condition appeared good. The urine, however, contained about 1 per cent. of albumin. On February 13th, 1904, he was given 1000 units of antitoxin, as there had been diphtheria in the ward. The following day he was feeling out of sorts with a temperature of 101 F., with marked puffiness of the face and general anasarca. His diet was strictly limited to milk and farinaceous material, but his condition now became worse than it ever had been. The amount of urine in 24 hours on February 16th was 12 ounces, with a percentage of albumin of 1.5, but he once more recovered his equilibrium and a week after the above note he passed 25 ounces of urine with only .25 per cent. of albumin. He was up and going about the ward with a more liberal diet, and he remained well until March 7th; the day previously the percentage amount of albumin was .4, but on the 7th it rose suddenly to 1.34 per cent, 41 ounces of urine being passed in the 24 hours. Two days later it was 2 per cent. with 32 ounces of urine. On March 12th there was marked œdema and ascites impeding his breathing. He also complained of intense tenderness of the abdomen, he was only passing 15 ounces of urine in 24 hours with 1.4 per cent. of albumin. On March 17th he developed a very curious condition. A red blush appeared over the fibular region of the right leg. This looked very like an erysipelas rash, and it was very tender on pressure. There was a marked thickening of the skin and the region affected was so exquisitely sensitive that he would not allow it to be touched without complaining loudly. This condition disappeared in about two days, but immediately a similar rash appeared on the anterior aspect of the left thigh presenting the same clinical features; the temperature rose to 103.6 F. The patient recovered from these attacks and he has remained in good condition for the past month.

I consider the clinical history which I have just narrated is important, because it was one of the first cases operated on for the cure of chronic Bright's disease (excluding from this category cases of nephritis complicating a movable kidney), and one can follow the case for two years and four months subsequent to operation. The immediate result of the operation was most gratifying, and one might say remarkable, and the prospect of having done the patient permanent benefit was good, but relapses have occurred. No doubt the lad's life was saved by operation at the time of his first admission to the hospital. His general health remained excellent until a year and nine months after the operation, when he had his first serious set-back. He was then readmitted to the hospital with an acute attack of nephritis, which readily yielded to medical treatment. Ten weeks subsequently another acute exacerbation took place and further operative interference was attempted for his relief. The operation of decapsulation which was performed on this occasion was of questionable benefit, for two months later he suffered another relapse which was followed by yet another after an interval of a month. On careful observation of the conditions under which he suffered these acute attacks during the past six months in the hospital it would appear that the acute exacerbations were induced by alterations in diet. As long as the patient was kept upon a diet consisting of milk, cream and farinaceous food he remained free from trouble, but when he was placed on full diet he soon developed serious symptoms. Further, it would appear that the administration of 1000 units of anti-diphtheritic serum induced one of these attacks.

The second case upon which I operated for the cure of chronic Bright's disease was admitted to the Hospital for Sick Children on June 24th, 1902. The patient, a boy 8 years old, had had measles in infancy and diphtheria six months before admission. The first symptoms of kidney disease were exhibited a month before admission, when puffiness of the face developed and general anasarca. The general oedema increased and shortly before coming to the hospital he had ascites. On admission he was passing $16\frac{1}{2}$ ounces of urine in 24 hours, specific gravity 1040, with 1.5 per cent albumin, containing hyaline, fatty, granular and epithelial casts. The patient was placed on milk diet, whilst free purgation and hot packing were employed. No improvement occurred and a month after admission his condition was considered critical. For seven consecutive days previous to operation he had passed an average of 7 ounces of urine daily, specific gravity 1030, albumin 1.3 per cent, containing hyaline, fatty and granular casts. The urea was 2.25 per cent. The right kidney was then operated upon and the capsule completely removed. The kidney at

the time of operation was slightly enlarged and pale; the capsule stripped off without tearing the cortex, there was no marked tension under the capsule. Two days after the operation he had a convulsion. His symptoms were not relieved by operation save that the amount of urine increased so that 11 days after operation he passed 17½ ounces in 24 hours with 1.3 per cent. of albumin and 2.1 per cent. of urea. On the thirteenth day after the operation he had a second convulsion when his temperature rose to 107.2 F. He died of uræmia 15 days after operation.

On careful study of this case and the clinical records one finds that calomel was largely used as a purgative during his stay in the hospital. I am convinced that mercurial salts should be interdicted in nephritis, at all events in repeated doses from day to day. There can be no doubt of the fact that calomel thus administered interferes to a dangerous extent with the excretory function of the kidney. The following case under the care of my colleague, Dr. Goldie, is, to my mind, a most convincing picture of cause and effect, illustrating the baneful effects of this drug in nephritis, and hence I venture to quote it: A child, 9 years of age, was admitted for Potts' Disease of the Spine. The temperature range was normal, and the urine normal. On April 23rd he developed headache and rise of temperature, followed in 26 hours by a punctate rash. He was transferred to the infectious ward as a case of scarlet fever. On April 26th the urine contained albumin, red cells and casts. On the 27th of April the throat showed redness and a small patch of membrane on one tonsil. On the 28th hydrarg. subchlor. grs. ½, in divided doses of ⅓th of a grain, was given night and morning owing to the intestinal condition. For over two weeks the urine was that of acute nephritis without any sign of improvement, while the membrane in the throat persisted and spread along the edge of the tongue. No bacilli diphtheriæ were found during this period. An inspection of the order sheet revealed the fact that the single order for hydrarg. subchlor. had been taken as a permanent order. On stopping this, both the kidney and the throat conditions cleared rapidly, both being normal on his discharge from the infectious ward seven weeks later.

The third patient on whom I operated was a boy of 18 years of age, admitted to the Toronto General Hospital on December 11th, 1903, suffering from chronic Bright's disease. Ten years previously he had an attack of post-scarlatinal nephritis, and subsequently an attack of pneumonia. In the autumn of 1902 he was out of sorts, but not until May, 1903, did he develop œdema of the extremities with puffiness of the face, and it was then found that he had Bright's disease. He lived

in a physician's family for three months previous to admission to the hospital, and was kept on milk diet whilst suitable therapeutic measures were adopted for his relief. The urine contained a large amount of albumin and casts, and his condition did not improve. On admission to the hospital he had general anasarca, the temperature was normal, his pulse was 80 per minute with high arterial tension, the heart was normal save an accentuated second sound. The urine contained 8 per cent. of albumin and there were numerous epithelial, hyaline, granular and blood casts; he passed 43 ounces of urine the first 24 hours in the hospital. Five days after admission, on December 16th, 1903, operation was undertaken; decapsulation of the two kidneys was performed at one sitting. The kidneys were markedly enlarged, each of them being nearly half as large again as the normal size. There did not appear to be any undue tension within the capsule; the surface was mottled and congested, and bled freely when the capsule, which stripped readily, was removed. The patient made a good recovery from the immediate effect of the operation.

After operation the oedema promptly disappeared. The immediate effect on the kidney function is indicated, if we compare the analysis of the urine two days previous to operation with that recorded three days subsequently. We find that the amount of urine voided was doubled, the specific gravity remaining unchanged. The percentage amount of albumin was reduced from .84 to .28 per cent., whilst the total amount of albumin passed in 24 hours was reduced from 8.568 grammes to 5.686 grammes. The percentage amount of urea was unaltered, but the total amount in 24 hours was increased from 17.85 grammes before operation to 36.354 grammes at the period indicated after operation. There was remarkably little variation in the specific gravity of the urine. The chlorides, as calculated from the total chlorine, were not markedly affected as far as the total quantity excreted was concerned, thus 3.53 grammes of chlorine before operation and 3.06 after. The percentage quantity, however, fell from .34 before to .15 after operation. A much more remarkable result was observed in connection with the phosphates as measured by the amount of phosphoric acid. Thus, whilst the day before operation the amount of phosphoric acid was 2.736 grammes, the amount dropped suddenly to .965 grammes the day after operation, and then rapidly rose to 3.538 grammes on the second day, and 5.86 grammes on the third day after operation. This effect was a very evanescent one, as within a week the phosphates had returned to the amount excreted prior to operation. The significance of this remarkable drop and subsequent increase in the phosphates is not very apparent, but it is certainly worth recording.

Further, in connection with this case it may be observed that the operation had no permanent effect upon the secretory power of the kidney as regards phosphates and chlorides. I am not aware of observations having been made regarding this point by others, but it is an important one in my estimation. I have represented the analyses from day to day in the charts which I publish herewith indicating the variations in albumin, urica, phosphates and chlorides, etc. The chart indicating the daily amount of urine and albumin may be compared with the one I publish in the report of my case of 1901, and it will be found that the effects of operation on the amount of albumin in these two cases have been very similar.

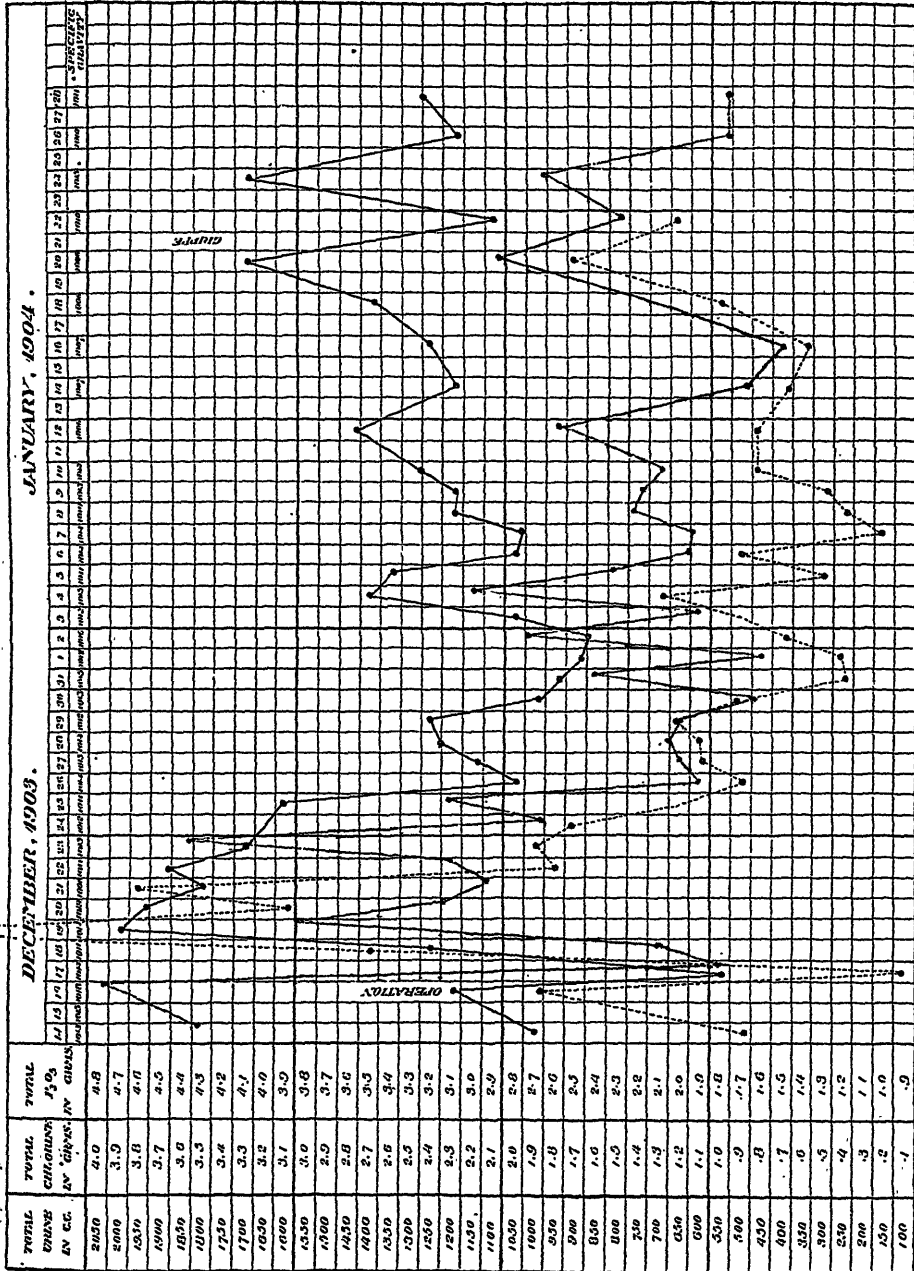
After operation in the case which I have just recorded the number of casts diminished greatly, so that two weeks after there were almost no casts, but for the subsequent five weeks there was considerable variation and this continues so that now, four months after operation, there are still casts present in the urine—hyaline, granular and fatty—but they are never in as large numbers as they were immediately prior to operation. The amount of albumin has remained greatly reduced, but it is still present and occasionally in considerable quantities. Usually about .2 per cent. is present, but recently, when attempting to transfer him from a simple to a more substantial form of diet, including meat, the amount of albumin increased to .4 per cent. One would have anticipated this immediate result, but I hope that the equilibrium will be re-established as is shown by Von Noorden² to be the case frequently in cases of Bright's disease when change of diet of that kind is made. The patient's general health is greatly improved since operation and there has been no indication whatever of any return of the oedema. [It is too early, of course, to predict the final outcome of the case.

Returning for one moment to the observations on the phosphates and chlorides, let me remind you that clinicians are not in the habit of making observations regarding these urinary constituents. Von Noorden would have us believe that phosphates are excreted with difficulty by the kidney in disease, whilst chlorides are well excreted. My charts certainly indicate that the excretion of phosphates was most markedly affected by my operative procedure, whilst the excretion of chlorides was not perceptibly interfered with. A paper has been published recently by Eugen v. Koziczowsky of Kissingen,³ in which he holds as the result of extensive observation that in health and on a fixed diet the percentage amount of these salts varies with the quantity of urine excreted, whilst the total amount excreted in 24 hours shows but slight variation. In certain cases of nephritis, however, things are

AMOUNT OF URINE CHLORIDES AND PHOSPHATES IN 24 HOURS

DECEMBER, 1903.

JANUARY, 1904.

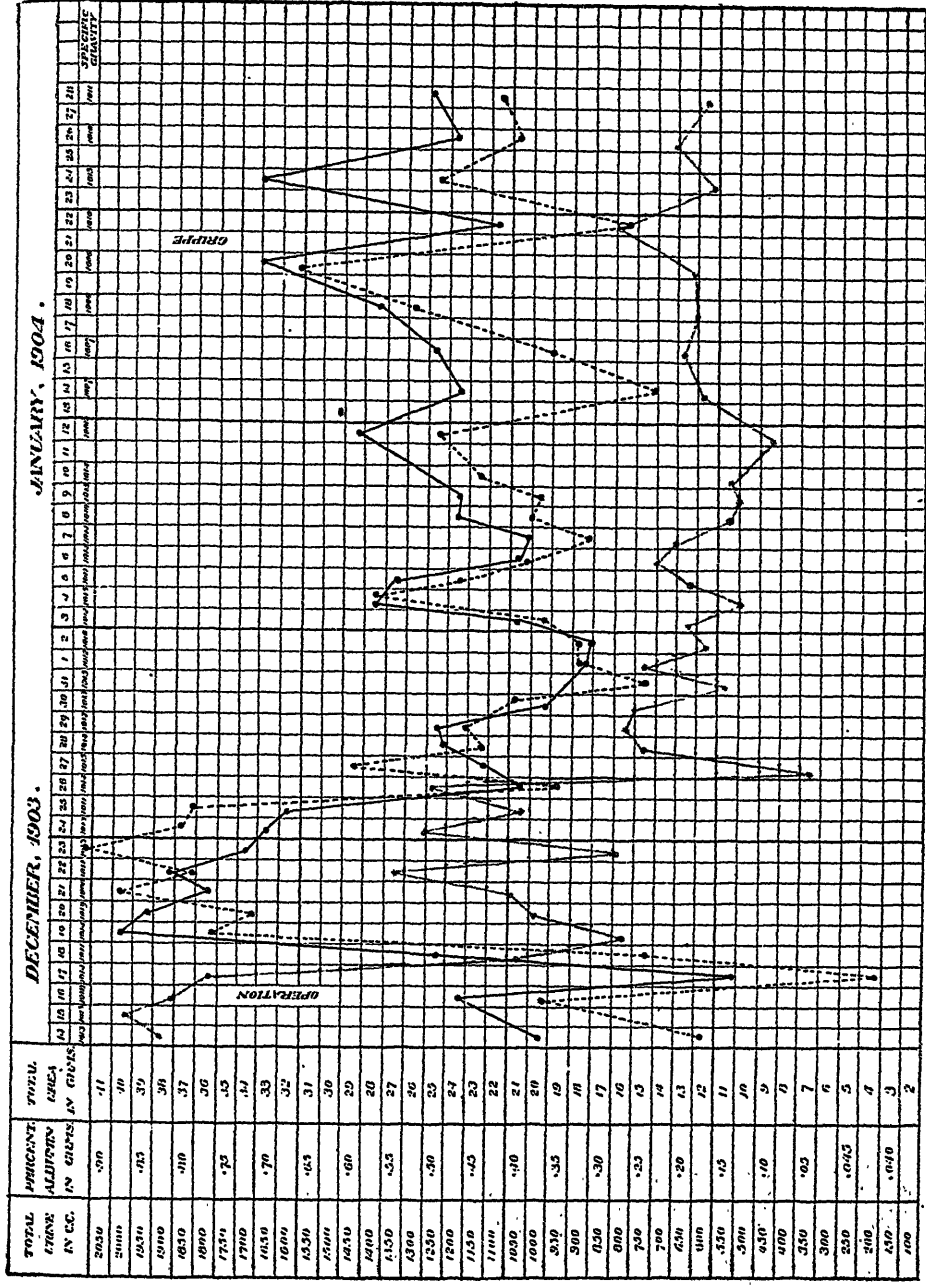


IN THIS CHART THE CONTINUOUS LINE REPRESENTS THE RUBY AMOUNT OF CHLORIDES, THE DOTTED LINE THE RUBY AMOUNT OF PHOSPHATES AND THE RED LINE THE PERCENT OF CHLORIDES.

AMOUNT OF URINE AND UREA IN 24 HOURS WITH PERCENTAGE AMOUNT OF ALBUMIN

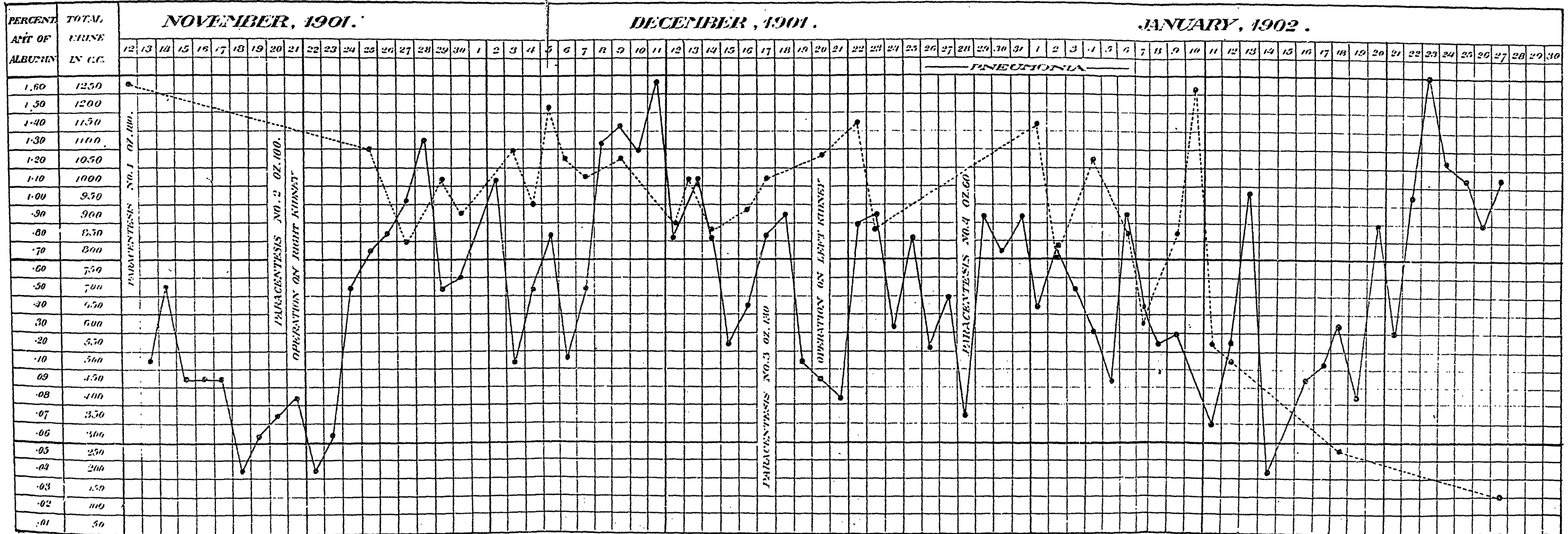
DECEMBER, 1903.

JANUARY, 1904.



IN THIS GRAPH THE CONTINUOUS LINE INDICATES THE DAILY AMOUNT OF URINE, THE DOTTED LINE THE AMOUNT OF UREA, AND THE RED LINE THE PERCENTAGE OF ALBUMIN.

AMOUNT OF URINE IN 24 HOURS AND PERCENTAGE AMOUNT OF ALBUMIN



IN THIS CHART THE CONTINUOUS LINE INDICATES THE DAILY AMOUNT OF URINE IN CUBIC CENTIMETRES AND THE DOTTED LINE THE PERCENTAGE OF ALBUMIN.

different. The percentage amount and the total amount of chlorides passed in 24 hours will vary within limits largely corresponding to the variations in the amount of urine passed. Increase in the amount of urine means increased percentage of chlorides, and therefore increased total amount excreted, whilst diminished amount of urine has the reverse effect. The behaviour of the phosphates in these cases is, however, more complex, for it is found that with diminished amount of urine and therefore with retention of the chlorides there was a greatly increased excretion of phosphates, whilst on the other hand, when diuresis had been induced, the resulting increase in the chlorides was accompanied by a diminution in the phosphates.

The fourth case which I now record belongs to that class of nephritis which complicates a movable kidney. The history of the case is as follows: A single woman, 32 years of age was admitted to the Toronto General Hospital complaining of pain in the region of the right kidney and frequency of micturition. The urine contained albumin, and in addition granular and hyaline casts, there were also found under the microscope red blood cells, pus cells and some oxalate of lime crystals. The right kidney was found to be movable and was tender on palpation. The presence of a renal calculus was suspected. Operation was performed on December 9th, 1903. The right kidney was exposed and presented a normal appearance when brought into the wound. It was split along the convex border and the pelvis explored, but no calculus was found. The capsule was then stripped back towards the pelvis so as to denude the outer half of the kidney, and then the organ was fixed in place by suture after the manner suggested by Edebohls.

Subsequent to the operation the albumin almost entirely disappeared from the urine; there is still an occasional trace, but in most specimens examined since operation, it has been entirely absent, casts have entirely disappeared; pus cells are still found, however, as a constant constituent, and occasionally red blood cells, whilst the urine remains acid in reaction. The case illustrates the type of movable kidney with casts and albuminuria which, when submitted to operation for fixation of the kidney, results in the disappearance of the albumin and casts.

The fifth and last case to which I wish to refer is one of calculous nephritis. The patient, 21 years of age, was operated upon quite recently (March 12th, 1904). The previous history of the patient showed that she had suffered from symptoms of stone in the kidney at intervals since she was six years of age, was operated upon quite recently (March 12th, 1904). The previous history of the patient showed that she had suffered from symptoms of stone in the kidney at intervals since she was six years of age. Latterly she was subject to

frequent attacks of renal colic. Examination of the urine has been made at intervals since October, 1900. There is no record of casts having been found at any time. A trace of albumin was usually present. Oxalate of lime crystals, a few red blood cells and usually many leucocytes were found. The specific gravity varied from 1020 to 1032. In a few specimens nothing abnormal was detected. The patient was referred to me by Dr. McPhredan for removal of a stone from the left kidney.

The kidney was exposed in the usual manner by an oblique incision and brought into the wound. A calculus was felt in the pelvis. The kidney was split along its convex border, and when the pelvis was reached a mulberry calculus of oxalate of lime, weighing two grammes was extracted. The bleeding from the kidney was profuse at the time of operation, and it became necessary to place a tampon of gauze in the kidney wound. The patient made an uninterrupted recovery from the effects of the operation, and has suffered no renal colic since. For the first 24 hours after the operation she passed 25½ ounces of urine, and the following 24 hours 30 ounces. The urine had a specific gravity of 1025, it was acid in reaction and contained albumin and blood. There were also granular casts and red blood cells under the microscope with numerous pus corpuscles. The subsequent post operative course was very different from that observed in chronic Bright's disease. In this case of calculous nephritis the percentage amount of albumin at first increased rapidly and then diminished much more slowly, whilst the operation had little or no effect upon the amount of urine secreted from day to day. In the course of three weeks, however, the albumin eventually fell from 1 to .01 per cent. The amount of urea increased markedly after operation, so that four days after operation there is recorded 3.6 per cent. of urea, but a week after operation it was 1.9 per cent., and it remained low subsequently, the daily record for the remaining two weeks of observation being on an average about 1.4 per cent. This urea output was extremely low, when one takes into account the small quantity of urine secreted representing in fact one-third of the normal amount. The general health and nutrition appeared to be excellent, however, and she left the hospital for her home four weeks after operation.

Before proceeding to discuss the significance of the results obtained in these cases let me enter a protest against the suggestion that ether should be the form of anæsthetic used in such operations upon the kidney. There can be no doubt that ether is a powerful irritant of the kidney when administered as an anæsthetic. This fact has been clearly shown by Dr. Chace⁴ of the New York Post-Graduate Medical

School and Hospital in a record of 125 consecutive cases of the analyses of the urine in ether anæsthesia. All operations on the kidneys were excluded because it was noticed that such cases developed a more severe form of nephritis than one would expect from the anæsthetic. One hundred of the patients had normal urine before operation, and of these no less than 77 had albumin in the urine after operation. Of these 77, there were 65 with casts as well as albumin. The 65 cases with casts exhibited in 20 cases hyaline casts only, 28 hyaline and finely granular casts, 15 hyaline and finely and coarsely granular casts, whilst in 2 there were hyaline, granular and epithelial casts and blood. Of the 25 cases in which the urine was abnormal before operation, the symptoms of kidney trouble were exaggerated after anæsthesia. In ten of these cases; for example, where there had been a mere trace of albumin and no casts before ether there were found hyaline and granular casts after anæsthesia; of the 125 cases two died of suppression of urine. Chloroform was administered in all my cases, and I am convinced it is the safer anæsthetic.

The effects produced by the different methods of dealing with cases of nephritis have been widely discussed and some experimental work has been done to endeavour, if possible, to determine the structural changes in the kidney and its immediate surroundings as the result of splitting the capsule or after capsulectomy. Within the last few months I operated upon a number of dogs in order to satisfy myself regarding the effects thus produced. One can very readily demonstrate that the capsule is rapidly reformed after its removal in the dog. In fact I can show you a specimen which to the naked eye appears as if a delicate new capsule were formed 24 hours after removal. The explanation of such a startling result is quite simple. Dr. Johnson⁵ of San Francisco stated some time ago that the renal capsule in a dog consisted of two layers, the outer of which is the thicker. In decapsulation the outer layer comes away leaving the inner layer lacerated, but still adherent. The reason one finds that the kidney appears to have a new capsule, if it is examined as short a time as 24 hours after operation, is that the traumatism to which the kidney surface has been submitted produces promptly a considerable amount of exudate and the capsule which appears so rapidly is largely composed of fibrin. But this is not all, because if you examine this new capsule formed after 24 hours you find fully formed fibrous tissue scattered through it, and leucocytes in addition. The exuded material has opened up the fibrous tissue of the remaining inner layer after decapsulation, in other words this layer becomes swollen and by van Gieson's method of staining one can demonstrate that this newly formed cap-

sule has quite a little fibrous tissue lying in it, whilst it is very cellular.

It is stated that this newly formed capsule becomes more and more strongly developed until at the end of two months it is thicker than the original capsule, whilst at the end of 3½ months it is differentiated into two layers again. In the dogs on which we have operated the fact that the capsule is thus reproduced was demonstrated.

To Dr. T. D. Archibald of the University Pathological Department, I am indebted for the record of the post-mortem conditions found. In addition to this Dr. Archibald made the numerous analyses of the urine which are necessary, and described the histological changes in the dog's kidneys. To detail shortly the results of these experiments I may state as follows:

No. 1. In a dog killed 24 hours after capsulectomy the kidney was covered by a membranous structure resembling somewhat in gross appearance the normal kidney capsule, but it varied in thickness, in some places it was thin, bluish-white and glistening, in others more yellowish in colour and rougher. In places it appeared to be augmented in thickness by adherent peritoneum.

No. 2. A dog which died of sepsis four days after capsulectomy showed much the same gross appearances on the surface of the denuded kidney. There had been an abscess in the muscular wall of the back.

No. 3. A dog killed seven days after capsulectomy showed a well-marked capsule surrounding the kidney which had been operated on. The kidney was adherent to all surrounding structures.

No. 4. A dog killed 11 days after nephrotomy: The kidney had been split along its convex border and the incision carried through to the pelvis. The wound in the kidney substance had healed, but a scar was found along the convex border and this was adherent at one point (about its centre) to the right portion of the liver. On section a yellowish white scar was found penetrating the kidney substance to the pelvis with small hæmorrhagic areas on each side.

No. 5. A dog killed 13 days after capsulectomy. The kidney was adherent anteriorly to the liver and the diaphragm, whilst posteriorly it was adherent to the diaphragm and the transversalis muscles. A well-marked capsule surrounded the organ and blood vessels could be readily observed with the naked eye running in this adventitious covering.

No. 6. A dog killed 33 days after the operation of capsulectomy. The kidney was adherent to the right portion of the liver, to the right tube and ovary, and to the great omentum. A distinct capsule was present. It was yellow in colour and was very tough and stripped with diffi-

culty, leaving a very rough torn kidney surface. The capsule was considerably thicker than normal.

I think we may assume from what we know of the structure of the capsule of the human kidney and from the results of experiments on dogs that the denuded kidney is enveloped in a new and probably more unyielding capsule after three or four months have elapsed than was the case before operation. Boncz-Osmolowsky,⁶ in experiments on dogs, described an interstitial change in the kidney substance which developed very rapidly after removal of the kidney capsule. Twelve days after capsulectomy he describes a granular roughening of the kidney with a thick development of connective tissue on the surface; this connective tissue penetrated into the substance of the kidney somewhat so as to compress the renal tubules lying superficially and the Malpighian tufts lying in the outer part of the section. Marked changes occurred in the cells of the renal tubules and of the glomeruli. The kidney tissue therefore in the peripheral portion of the organ is highly altered according to this observer.

In addition to the observations made on the reformation of the kidney capsule Dr. Archibald made careful analyses of the urine passed by the dogs operated upon. Excluding for a moment from our summary, dog No. 1, which was killed 24 hours after operation, we may make the following statement regarding the effect of operation on the urine in the other cases. In these five dogs the urine was normal before operation, and in all of these there was albumin present for three days subsequent to operation. The amount of albumin was small in most instances, but in the dog submitted to nephrotomy it was higher (.13 per cent) than it was in the dogs submitted to capsulectomy (.025 to .06 per cent). From three to four days after operation blood was present in the urine in all five cases, in the nephrotomy case blood was present in large amount for the first 24 hours, but there too it had disappeared after four days. Pus and epithelial cells were also present in all cases, but they disappeared with the albumin and blood. In all of these cases there was a notable diminution in the amount of urea excreted for some days after operation.

Dog No. 1, had interstitial nephritis before operation. The urine before operation contained hyaline and granular casts, and a few pus and epithelial cells, but no albumin. The day after operation there was still no albumin, urea had diminished from 5.5 to 1.85 per cent, there was a little blood and pus under the microscope. A very few hyaline casts were found. At the time of operation a piece of this dog's kidney was removed for microscopic examination and was found

to present the features of a typical case of interstitial nephritis. The absence of albumin in this case after operation when its presence was always found after operation in the dogs with normal kidneys is worthy of note.

The histological findings in these dogs may be briefly alluded to. In every case sections were cut from the kidneys which had not been operated on as well as from those on which capsulectomy or nephrotomy had been performed. In the case of the former, sections of portions from which the capsule had been removed post mortem were compared with sections where the capsule was left intact. In all cases where it had been stripped a portion of the capsule remained behind, enveloping the organ with a thin covering of connective tissue. Twenty-four hours after capsulectomy the remaining inner layer of the capsule was swollen and oedematous with deposition of fibrin and exudation of leucocytes between the fibres. Four days after capsulectomy the remaining capsule was extremely cellular, the connective tissue fibres showed active proliferation and many new blood vessels were present. Seven days after capsulectomy there was found active proliferation of connective tissue and numerous new blood vessels. In places adhesions were forming between it and the fatty capsule. Eleven days after nephrotomy the wound in the kidney substance was entirely filled by granulation tissue. There was a slight exudation on the surface of the organ adjacent to the incision which was likewise becoming organised. Fourteen days after capsulectomy there was a capsule on the surface of the kidney almost as thick as the normal but much more cellular and outside this a looser, but thicker layer of connective tissue connecting it to the liver. There were several blood vessels of considerable size in this looser connective tissue layer. Thirty-three days after capsulectomy similar appearances were found, but the new capsule was less cellular and the layer of connective tissue joining it to the liver much firmer and the size and number of blood vessels in this layer diminished.

Referring for one moment to the occurrence of nephritis in patients suffering from movable kidney, Newman,⁷ of Glasgow, was, I think, the first to demonstrate the fact that cases of Chronic Nephritis complicating movable kidney could be cured by nephropexy. His results were published in January, 1896. Edebohls⁸ would minimise Newman's work in this direction and disposes of his claim to priority in suggesting surgical means for the cure of chronic nephritis in movable kidney by stating that these cases "are not claimed by Newman as cases of chronic nephritis." By reference to Newman's paper it will be observed that he reported the presence of albuminuria and tube

casts in both cases operated upon; what further clinical evidence is required, we ask, to establish the presence of chronic nephritis in such cases? Or what additional clinical evidence had Edebohls himself in establishing the diagnosis of chronic nephritis in many of the cases reported as such by himself? Reginald Harrison,⁹ in October, 1896, whilst writing on this subject, referring in this paper to three cases of nephritis which he had operated upon and had reported in January, 1896,¹⁰ speaks of Newman's cases in the following terms, he says, "Both of these cases appear to me to have an important bearing both upon the pathology and treatment of albuminuria." About three years after the appearance of the papers by Newman and Harrison, Edebohls published a paper entitled "Chronic Nephritis affecting a Movable Kidney as an indication for Nephropexy."

Newman's cases would go to show that it is not necessary to remove the capsule in order to effect a cure in these cases of chronic nephritis complicating movable kidney, but that the urine becomes normal after fixation of the kidney. The question involved here, however, is not of much importance in determining the form of operation, because fixation is more definitely secured in my estimation by partial stripping of the capsule than by the mere introduction of sutures without stripping.

The writer is inclined to believe that the occurrence of chronic nephritis in movable kidney is closely related to so-called cyclic or orthostatic albuminuria. My friend, Dr. G. A. Sutherland,¹¹ has made extensive observations on this form of albuminuria and would have us believe that there is no connection between nephritis with albumin and casts (as in chronic Bright's disease) and albuminuria without casts. This view has been held by most authorities, I believe, since the condition was first described by Pavy,¹² in 1885. One does not hold for a moment that a marked distinction is not to be drawn between cyclic albuminuria and chronic Bright's disease. In the latter disease there must be degeneration and destruction of the renal epithelium, which does not occur in the former case. It would appear reasonable, however, to suppose that whilst the majority of cases of cyclic albuminuria eventually go on to spontaneous recovery there are probably a certain number of cases which eventually develop a true organic nephritis as the result of faulty nutrition. Sutherland finds that cyclic albuminuria is a disease arising during early adolescence and after that period of life is passed the trouble either disappears or persists indefinitely.

Sutherland¹³ has written a paper with the object of pointing out

the circumstance that orthostatic albuminuria is frequently accompanied by movable kidney. He finds that in the cases he reports of this trouble in children and young adults no less than 35.5 per cent had movable kidney as a complication. My own observations and those of others would go to show that movable kidney is not infrequently complicated by chronic nephritis in adults. Is it not extremely probable that Sutherland's cases of movable kidney with cyclic albuminuria in children and young adults occasionally develop into the movable kidney with chronic nephritis in the adult? If this be so then, knowing the relief which is attained by fixation of the movable kidney in the adult suffering from chronic nephritis, we have a strong argument in favour of operating for fixation of the kidney in those cases where the cyclic form of albuminuria persists with movable kidney after adolescence. Sutherland further admits the possibility of nephritis as a complication in these cases and further states that "complete recovery frequently follows an attack of nephritis in childhood," a remark which has a bearing on some observations which I shall make later on.

The result of operation upon the nephritis of movable kidney is entirely satisfactory, and we can confidently predict a cure in the majority of such cases submitted to operation. Not so with chronic Bright's disease, however, we have a question here which is by no means settled. Let me say here that I am not one of those who advocate decapsulation of the kidney as a measure to be adopted indiscriminately in Bright's disease. We cannot, however, close our eyes to the fact that a very remarkable effect can be produced by operative interference in such cases. I am of opinion that we will sooner or later arrive at the conclusion that in a certain class of cases relief is to be expected from surgical interference. The limitations of the operation are far from being set at present, but I consider the attitude of the individual who stigmatises the operation as useless is just as unreasonable as that of the individual who advocates operation as a curative agent in all cases.

As the result of a series of laboratory experiments in which he sought to disprove Edebohls' theory as to the increased vascular supply to the kidney after decapsulating, Dr. J. M. Vancott,¹⁴ of Brooklyn, recently stated at the Medical Society of the State of New York that "Dr. Edebohls' theory regarding renal decapsulation for the cure, or even the relief, of nephritis must fall to the ground." The attitude reminds one of the story of a well-known Scotch professor who mathematically proved in his laboratory that a man of definite height and length of arm could only drive a golf ball a de-

finite distance. The calculation having been made with mathematical accuracy the professor's son went to the links and drove the ball several yards further than the appointed distance. The fallacy in Dr. Vancott's argument lies in the fact that he has, or thinks he has proved Edebohls' theory to be incorrect. But supposing we grant Edebohls' theory to be erroneous, that does not by any means disprove the assertion that decapsulation of the kidney may act in a beneficial manner upon the diseased renal tissue in chronic diffuse nephritis. Nor will it do to urge that because diseased kidney tissue is merely a local manifestation of a general condition therefore operation on the kidney is incapable of effecting a cure. One might just as well argue that in an individual suffering from pyæmia no relief could be obtained by opening an abscess which may be a local manifestation of the general condition. Regarding the correctness of Edebohls' theory that the beneficial results of his operation are to be ascribed to increased blood supply to the cortex of the kidney, one has been sceptical from the outset. In my paper published two years ago I stated that to my mind Edebohls' theory was not satisfactory. I am still inclined to believe that Harrison was correct when he ascribed the results to relief of renal tension. At first glance my position might seem illogical because I have recorded in each of my cases that I have not found the capsule tense. My view, however, is that tension within the capsule is in all probability of intermittent occurrence in chronic nephritis; acute exacerbations are characteristic of the disease, and in these acute exacerbations there is probably great tension within the capsule. Now after removing the capsule the kidney may enlarge without undue tension and thus serious consequences are not so likely to occur as would be the case were the capsule intact. True, the capsule may reform, but in the meantime reparative processes may have advanced sufficiently to have produced some permanent benefit. Again it has occurred to me that an acute nephritis engrafted upon a chronic form may act beneficially. I have just quoted the observation of Sutherland that cyclic albuminuria frequently disappears after an attack of acute nephritis. In this connexion too it may be noted that there is abundance of clinical evidence to show that cases of chronic nephritis undergo spontaneous cure occasionally. My colleague, Dr. Rudolf, has given me the clinical notes of a patient under his care 40 years of age who had albumin, blood and many casts in his urine in August, 1900. Since that time he has been under observation every week. In December, 1903, the albumin which had been gradually diminishing disappeared. Since then there has been an occasional trace, but now there is no trace of albumin. He has been

on a limited diet and suitable medicinal treatment. It has been found occasionally that an individual suffering from chronic nephritis gets rid of his trouble after some intercurrent acute illness, in fact one of my critics suggested that my first patient recovered as the result of an attack of pneumonia which followed operation rather than as the result of the operation itself! It is possible that the acute exacerbation which recurs so frequently in chronic nephritis may be beneficial under certain conditions, if this be admitted then the acute attack may be more likely to effect a beneficial effect when the capsule has been removed or split than when the capsule is intact. Under these circumstances Harrison's view that benefit results when tension is relieved or prevented would be reasonable. On the other hand with the capsule intact the acute attack may cause undue tension and the kidney function is held in abeyance and the patient may die of uræmia. One further suggestion I would like to advance is that the operative procedure may produce if not an acute nephritis at least a hyperæmia which may act beneficially when the capsule is split or removed. One finds evidence of this in hæmaturia after the operation, although this is not invariably present. In the experiments on the dogs with normal kidneys, I found that blood and albumin invariably appeared in the urine and kept up for from three to four days after operation. The objection may be raised that the effects produced may be different when one is dealing with a diseased kidney, and therefore one cannot deduce arguments from operation in dogs with normal kidneys. This objection is well taken, and as a fact in the dog with interstitial nephritis there was no albumin in the urine after decapsulectomy, this being the only exception. There was blood, however, in small amount. Further observation on this point will be interesting and I am looking forward with interest to the results of Dr. Walker Hall's¹⁵ investigations on the effect of decapsulation on kidneys in which a degenerative nephritis has been induced. A brief reference is made to Dr. Hall's communication to the Manchester Medical Society in the *British Medical Journal* of March 12th, 1904.

Let me remark in passing that the theory which I have here advanced would explain the relief of symptoms in those cases where a calculus has been suspected, but where, after nephrotomy, none is found.

I have referred in this paper to a case of calculous nephritis, and I have done so with a special object in view. This condition readily yields when the local trouble is removed but you will observe by reference to my report that the effect of operation here was very different from that recorded in my cases of chronic Bright's disease, thus in

the latter there was a very prompt drop in the amount of albumin after operation, whilst in the case of calculous nephritis there was as marked a rise in the amount of albumin immediately after operative interference. This result tallies with that obtained in the dogs with normal kidneys. In such cases there is probably very little damage to the renal epithelium prior to operation and the effect of nephrotomy is probably very similar to that which would be produced on the normal kidney. These results would still further strengthen one in the opinion that theories formed on the effect of operation on normal kidneys in the laboratory must be taken with reserve when used to explain the results obtained in operating in chronic Bright's disease.

Lastly in this connection let me state that the function of the renal capsule has not yet been taken into account in all its possible bearings on the question. Emerson and Meltzer¹⁶ have concluded as the result of a series of experiments on dogs that "the normal capsule of the dog's kidney serves the function of preventing the absorption directly through its substance of fluids in which it may be bathed, whereas when the capsule is removed, for a short time after, absorption of fluids may occur into the blood stream through the parenchyma."

Levin, of New York, at the recent meeting of the American Association of Pathologists and Bacteriologists, made a preliminary report on a series of experiments which he is carrying out on the function of the kidney capsule in dogs. He has been making some observations on the variation of the kidney volume by oncometer methods. By means of sphygmographic tracings he studied the pulsations of the kidney comparing them with the pulsations of the carotid. He found that pulsation ceased in the kidney when it was decapsulated and he concludes that the capsule performs other functions in addition to those common to the capsule of other organs, and that it in all probability is an elastic covering which expands and contracts with the needs of the organ acting in a way as a safety valve. From the results of his experiments he is inclined to question whether the operative value of decapsulation is not less than that of nephrotomy without decapsulation.

In discussing the form of operation employed in these cases it would appear that very similar results are obtained after decapsulating or splitting the capsule or in nephrotomy. Stern,¹⁷ (Dusseldorf), records cases relieved by nephrotomy and advocates it in chronic interstitial nephritis where internal medication fails to relieve the condition. Pousson¹⁸ advocates nephrotomy in chronic nephritis with much hæmorrhage, and has also performed nephrotomy successfully in two cases of chronic nephritis, because of uræmic phenomena.

Luxardo¹⁹ also advises nephrotomy. Harrison advises splitting the capsule alone. Edebohls cuts the entire capsule away. Personally, I would be inclined now to advocate partial stripping of the capsule so as to leave one-half the surface still covered by normal capsule, this would relieve tension and would prevent any ill effects which might later be produced by confining the kidney wholly within the dense unyielding capsule which it has been alleged forms in course of time.

There is a large amount of clinical evidence now available for study in connection with the surgical treatment of nephritis. Guiteras²⁰ as early as November, 1903, published the results of 120 cases which he had collated from the literature. One must say, however, that it would seem rather premature to calculate the percentage of cures in these cases as Guiteras has done. The operation is too young to pronounce as to permanent results. This fact is illustrated by the relapses which have occurred in the patient which I operated upon in 1901, who remained in excellent health for a year and nine months, and then relapsed.

As to the indications for operation in chronic nephritis I think we cannot as yet pronounce very definitely. Personally I would not entertain the idea of operating in chronic Bright's disease where the patient is in good general health, and where there is no indication of progressive failure of kidney function. Where, however, medicinal and dietetic treatment fails to check the progress of the disease, and when serious symptoms manifest themselves, we are justified, I believe, in attempting to obtain relief by surgical means. It is possible that the time will arrive when we will be able to select cases for operation at earlier stages of the disease, but I do not think we have yet determined the early symptoms which warrant such measures.

The question of operating in acute nephritis I will dispose of in a few words. Hitherto we have allowed patients to die with suppression of urine in acute nephritis without attempting to secure relief by surgical means. Sufficient clinical evidence has been accumulated to warrant us in the conclusion that relief may be obtained in certain of these cases by surgical means. Harrison long ago (in 1896) made the reasonable suggestion that such cases could be saved by splitting the capsule of the kidney. As early as 1878 he operated successfully by nephrotomy in a case of post-scarlatinal nephritis. Edebohls²¹ operated a year ago by renal decapsulation in puerperal eclampsia of renal origin. The patient had five convulsions before forced delivery at the end of the eighth month, then freedom for 46 hours, and then six more convulsions in 18 hours, after which decapsulation was performed; the convulsions did not recur and the patient recovered.

In conclusion I may reiterate my statement that cases of movable kidney with albuminuria and casts should be submitted to operation with, I believe, excellent prospects of effecting a cure. The question of the advisability of operating in chronic Bright's disease is still not definitely settled, but I think experience has proved that we have here a very potent method of affecting the course of the disease, and I feel convinced that sooner or later we shall learn how to employ that method for the permanent benefit of our patients.

BIBLIOGRAPHY.

- The Operative Treatment of Chronic Bright's Disease. A. Primrose, *Canadian Journal of Medicine and Surgery*, March, 1902.
- ² "Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition", by Carl von Noorden, Frankfurt, a.M., translated by Boardman Reed, part 2, "Nephritis", pp. 31, 33.
 - ³ Eugen v. Koziczowsky, "Beiträge zur Kenntniss des Salzstoffwechsels mit besonderer Berücksichtigung der chronischen Nephritiden." *Zeitschrift für Klinische Medicin*. Band 51 Heft 3 u 4 p. 237, 1903.
 - ⁴ A. F. Chace, "A record of 125 consecutive cases of the analyses of the urine in ether Anæsthesia", "*The Post-Graduate*", N.Y., March, 1904, p. 302.
 - ⁵ H. A. Johnson, "Results of Decapsulation of the Kidney", *Annals of Surgery*, April, 1903, p. 592.
 - ⁶ B. Boncz-Osmolowsky, "Einige Untersuchungsergebnisse über die Veränderung der Nieren bei Entfernung ihrer Kapsel." *Münchener Medizinische Wochenschrift*. No. 47, Nov. 24, 1903, p. 2066.
 - ⁷ Newman, D. "Intermittent Hydronephrosis and transient Albuminuria in cases of movable Kidney", *Lancet*, Jan. 13, 1896.
 - ⁸ G. M. Edebohls, "Questions of Priority in the Surgical Treatment of Chronic Bright's Disease", *Medical Record*, New York, April 26th., 1902.
 - ⁹ Reginald Harrison, "The Treatment of some forms of Albuminuria by Reni-puncture", *British Med. Journal*, Oct. 17th., 1896, p. 1126.
 - ¹⁰ Reginald Harrison, "A Contribution to the study of some forms of Albuminuria associated with Kidney tension and their treatment", *Lancet*, January 4th., 1896.
 - ¹¹ G. A. Sutherland, "Cyclic Albuminuria", London, *The Medical Publishing Company*, 1900.
 - ¹² F. W. Pavy, "Cyclic Albuminuria", *The Lancet*, 1885, Vol. 11, p. 706.
 - ¹³ G. A. Sutherland, "Orthostatic Albuminuria and Movable Kidney", *American Journal of the Medical Sciences*, Aug., 1903.
 - ¹⁴ Dr. J. M. Vancott, *New York Medical Record*, February 6th., 1904, p. 237.
 - ¹⁵ Dr. Walker Hall, "Renal Decapsulation", *British Medical Journal*, March 12th., 1904, p. 607.
 - ¹⁶ H. Emerson and S. J. Meltzer, "Studies upon the Capsule of the Kidney". *Transactions of the Association of American Physicians*, Vol. 18, 1903, p. 193.
 - ¹⁷ C. Stern (Düsseldorf), "Beiträge zur Frage der chirurgischen Behandlung chronischer Nephritis". *Zentralblatt für Chirurgie*, Nr. 49, 1903, p. 1350.
 - ¹⁸ A. Pousson (Bordeaux) de l'intervention chirurgicale dans les néphrites infectieuses aiguës et dans les néphrites chroniques", *Bull. et mém. de la soc. de Chir. de Paris*, T 27, p. 689, abstract in *Zentralblatt für Chir.*, Nr. 13, p. 375, 1903.
 - ¹⁹ Luxardo, "Ueber Chirurgische Eingriffe in einigen Formen von Nephritis". *Münchener Medizinische Wochenschrift*. No. 7. 16 Feb., 1904, p. 319.
 - ²⁰ Ramon Gutierrez, "The operative Treatment of Chronic Bright's Disease", *New York Medical Journal*, Nov. 7th. and 14th., 1903.
 - ²¹ G. M. Edebohls, "Renal Decapsulation for Puerperal Eclampsia", *New York Medical Journal*, June 6th., 1903.

OTOMYCOSIS DUE TO THE ASPERGILLUS GLAUCUS.

BY

HERBERT S. BIRKETT, M.D.,

Professor of Laryngology, McGill University, Laryngologist and Rhinologist
to the Royal Victoria Hospital,

AND

ALBERT G. NICHOLLS, M.A., M.D.,

Assistant Professor of Pathology, McGill University, Montreal.

Considerable interest has of late been evinced in certain diseases which have been found to be due to various forms of moulds. The pathogenicity of fungi, apart altogether from the innumerable varieties of bacteria, such as the actinomyces, the organism of Madura Foot, and the streptothrix, has for years been well-recognized, and we are beginning to realize with increasing force that other forms which have ordinarily been regarded as harmless can on occasion give rise to disease processes. Among these may be instanced the aspergillus which is the cause of pneumonomycosis, a disease closely resembling chronic tuberculosis. It causes also a form of otitis, and has been discovered by an Italian observer in pellagra. It is somewhat remarkable, considering the great abundance of such moulds in nature, that they should so rarely cause trouble, and in fact some controversy has taken place as to whether aspergilli when present in disease processes should be regarded as true parasites or merely as accidental saprophytes. It can, however, hardly be denied in view of recent experimental work that the aspergilli are pathogenic, at least for the ordinary laboratory animals, and by inference for man, and it can only be that their pathogenicity is of a low grade, or that it can be evinced only under a peculiarly fortunate or unfortunate concurrence of circumstances.

The occurrence of moulds in the external auditory meatus was recognized by Mayer as far back as 1844, but we are indebted for more exact knowledge to the classic researches of Schwartze and Wreden. The form most commonly found is the aspergillus, of which about sixty instances are on record, mostly in Germany and the United States. The disease Otomycosis, or, as it was somewhat more precisely called by Wreden, Myrinomycosis Aspergillina, is decidedly rare in Canada. Buller (26) states that he has met with only one case, and that due to the aspergillus niger, in about thirty-five hundred patients in the Province of Quebec, and only two cases have been reported to this Society, one by Dr. G. H. Mathewson (25), and the other by one of us (H. S. B.) (27). Both of these were also of the niger variety. The disease is now sufficiently well recognized by otologists everywhere, although certain

minor points as to differentiation of the species of moulds at work remain to be worked out. We are lead to place the present case on record, not from anything peculiar or new in the disease as such, but to draw attention to an example of an excessively rare form of infection.

CLINICAL HISTORY by Dr. Birkett.—The patient was a man about 40 years old, and he consulted me on account of an impairment of his hearing, which had been present for nearly three months. The condition has been treated by syringing on the presumption that the deafness was due to an accumulation of wax, but it did not improve, and when I saw the man his hearing was limited to detecting the sound of a watch when it was held in contact with the ear. The patient also complained of an intense itching and a stinging pain in the ear.

Upon examination I found the ear filled with a dark mass, which at first sight resembled desquamating epithelium, but upon closer inspection with a lens, the surface appeared to be covered with a greenish material, which presented all the characteristics of a mould. This impression was confirmed when I removed the mass and examined it more closely.

The case, then, was definitely one of mycotic infection, but it was not apparent at the time which form it was. The treatment was obvious, the instillation into the ear of alcohol and boracic acid at intervals during three months. At the end of that time the growth was destroyed, and the hearing was restored to about half the normal acuteness. At the time the growth was thought to be an *Aspergillus*.

Moulds in the ear are not uncommon, but the *A. glaucus* variety is very rare. Many of these cases are treated as if they were merely due to an accumulation of wax, and too often they are treated by the injection of water, which does not improve matters as moisture is favourable to continued growth. In addition to this there is usually an eczematous condition present in the auditory canal which makes the habitat still more favourable for plant life.

A portion of the material removed, which had the appearance of dried secretion covered with a dull greyish-green fur, was inseminated on agar and potato. On agar in twenty-four hours was produced a mould together with a moist whitish scum of a different nature. The latter was proved subsequently to be a growth of the *staphylococcus albus*. On potato the growth of the mould was much more luxuriant than on agar. From the potato culture pure growths were obtained which were inseminated on broth, agar, potato, and gelatine plates. The resulting growth was most abundant on potato and gelatine, less

so on broth and agar. The mould grew well both at the room and incubator temperatures. Under the microscope it was found to belong clearly to the aspergillus group and presented the following characteristics. It possessed the usual branching mycelium. The hyphæ were relatively short, faintly granular, practically devoid of pigment, and exhibited slight fusiform enlargements. The receptaculum was flask- or club-shaped. The sterigmata were undivided and placed on the distal two-thirds of the receptaculum. The spores were round or slightly ovate and of a distinct pale greenish tint. As compared with the *A. niger*, the main differences in the organism under discussion were that the receptaculum was much smaller, less fully fruited, the hyphæ shorter, and the pigment green instead of black.

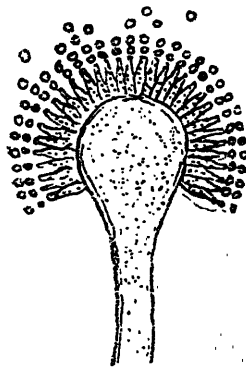


FIG. 1. Diagrammatic section through the centre of the conidiophore of the *Aspergillus glaucus*.

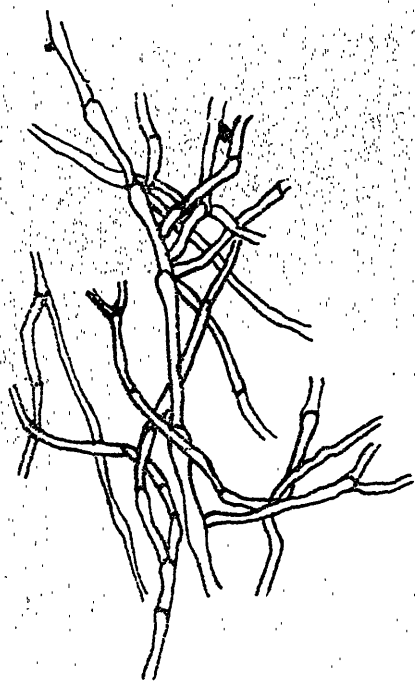


FIG. 2. Idealized view of the mycelium of an *Aspergillus*. (Thoma.)

An emulsion was made of the mould in physiological salt solution and one and a half ccm. of this injected with antiseptic precautions into the auricular vein of a rabbit. The animal died in three days.

The animal was sectioned shortly after death, and the lungs, liver, and kidneys were found to be thickly studded with what resembled small abscesses or minute areas of necrosis, the size of a pin-head and

surrounded by a zone of hyperæmia. Small portions of the liver and kidney, removed with the usual precautions, were placed in agar tubes and subjected to the incubator temperature. In two days there was an abundant growth of a mould of dark greyish-brown colour. When transferred to potato the original, characteristic, dull greenish pigment was produced. Microscopically, the mould presented all the peculiarities of the original form inoculated. Portions of the liver, lungs, spleen, and kidneys were mounted in celloidin and stained with hæmatoxylin-cosin, lithion-carmin, and carbol-thionin. The best results were obtained with the last-mentioned stain. The fungi were observed in all the organs save the spleen. The small dots seen in the various organs consisted of masses of mycelium together with a few mononuclear and polymorphonuclear leucocytes. The mould was particularly abundant in the larger vessels, but had extended even into the capillaries. The mycelium in places presented the appearance of short rods, somewhat resembling bacilli, except that they were much larger and tended to be sharp at one end while clubbed at the other. In other cases the mycelium formed long, simple or richly branching filaments. Small areas of condensation in the protoplasm could frequently be seen. No sporangia were noted. In view of the peculiar colour of the pigment in the mould just described we have concluded that it is the *aspergillus glaucus*. It is true that it has been stated that this form is non-pathogenic and will not grow at the incubator temperature. This we are convinced is an error. So far as we can gather from the various authorities there is, as is usually the case when the humbler forms of vegetable life are under discussion, considerable difficulty in differentiating between the various forms of *aspergillus*, inasmuch as all may at times show some aberration from the type. It is usually stated that the *aspergillus niger* is the form commonly found in the ear, yet Steinbrugge, in the article on the Ear in Orth's Pathology, holds that it is the *fumigatus*. This discrepancy of opinion probably arises from insufficient study of the forms mentioned, for occasionally the *A. niger* presents a smoky appearance, and again the *A. fumigatus* may become blacker. Apparently a difference of environment is sufficient to produce an alteration of the pigment, for it will be remembered that in our case the mould as recovered from the rabbit into which it had been inoculated and grown on agar presented a somewhat brownish colour, which was subsequently on a different medium transformed into a dull, glaucous green. Similar considerations have led some to regard the *A. flavus* and the *A. fumigatus* as sub-varieties of the *A. glaucus*. With regard to pathogenicity, we need only say that the *A. niger* and the *A. fumigatus* have been the forms usually studied, while

but little seems to have been done in the case of the *A. glaucus*. So far as our present knowledge goes, we can only distinguish between the various forms on the basis of the colour of the pigment, the size of the receptaculum, the length of the hyphæ, and, possibly, slight differences in pathogenicity. As compared with the *A. niger*, the form we have here described possessed much shorter hyphæ, the receptaculum was smaller and more flask-shaped, and the pigment was a dull greyish-green. As Moos (⁷) has pointed out in the case of the *A. fumigatus*, clinical symptoms may be absent or trifling, indicating a low grade of virulence. At other times the condition is troublesome and persistent.

Not having access to the complete literature on the subject of otomycosis we are unable to state positively in how many of the recorded cases the *A. glaucus* has been found, but undoubtedly it is excessively rare. Wreden, Siebenmann, Hassenstein, and Burnett all mention the *A. glaucus* as occurring. Hassenstein's patient was a man forty-five years of age, who had for five or six years suffered from nasal catarrh and deafness. He had had a malodorous discharge from the right ear for three years, but no pain or tinnitus. The auditory canal was reddened and swollen. The symptoms lasted ten days after treatment was inaugurated. On the walls of the meatus and on the membrane was a yellowish green deposit. An examination of this by Hallier revealed several forms, the *A. glaucus*, stemphylium, and the graphium pencilloides. Burnett's patient was a man thirty-five years old, who had for some weeks suffered from deafness, pain and itching of the left ear and a watery discharge. A few days later the right ear became involved. Examination showed in both a pale grey membrane covering the upper part of the canal and the membrana.

The essential conditions for the growth of aspergilli appear to be warmth and moisture. Thus it is that the mould usually affects the external auditory meatus or the lungs. It is rare to find it elsewhere. Draper, of New York, once observed the *A. niger* growing on the skin on the inner side of the thigh, and it is interesting that in this patient the organism subsequently appeared in the ear. The fungus is also known to invade the interstices of the bones in the case of dogs and fowls, and an epidemic of this disease has been noted among the birds in one of the zoological gardens. Attempts to cultivate the mould in the normal ear have failed, so that it would seem that some pathological condition must previously be existent which provides the necessary factors. The presence of normal wax or of a purulent discharge do not favour the growth. Maceration and loosening of the superficial epithelium, with the production of a neutral or slightly acid medium,

such as is produced by dermatitis, eczema, or psoriasis, so-called, provide the most favourable conditions. The site of election in the ear is perhaps best explained in that the essential factors are here provided and in view of the common practice of instilling oil or other foreign substances, which are apt to contain the spores, into the ear. The mycelium grows in the rete malpighii and gradually penetrates the deeper structures. The hyphæ can be seen projecting into the cavity. In consequence of the fungus reaching the sensitive parts, or possibly from some toxin, irritation is produced. There is a sense of fulness or actual pain in the ear, tinnitus and itching of the meatus. Vertigo is rare, but the hearing may be considerably impaired. On examination patches of a membranous character may be noted on the walls of the canal or even on the membrana, presenting a colouration varying according to the nature of the fungus at work. In several cases, the fungus has extended to the middle ear, and in two was apparently the cause of perforation (Pollitzer, Bezold). Diagnosis is readily made with the microscope.

The usual treatment consists in mechanical removal of the plugs, and the topical application of some parasiticide, of which nearly all have at some time or other been advocated. Perhaps the best is rectified spirits, either alone or with boracic acid (1-20), or salicylic acid (2 per cent.). The disease is, as a rule, readily amenable to this procedure.

In conclusion, we desire to express our thanks to Dr. F. M. Fry, who kindly undertook to look up certain references not accessible to us.

BIBLIOGRAPHY OF OTOMYCOSIS.

1. Mayer—Müller's Archiv., 1844, S. 410.
2. Pacini—Una muffa parassita nel condotto auditivo esterno. Firenze, p. 7.
3. Cramer—Vierteljahrsh. d. Naturforscherges. in Zurich, 1859.
4. Schwartze—Arch. f. Ohrenheilkunde. Bd. II., Heft 1, 1857.
5. Wreden—Arch. f. Ohrenheilk. Bd. III. Heft I.
6. Siebenmann—Zeitscher. f. Ohrenheilk. XII, S. 124, 1882-3.
7. Moos—Profuse aber vollständ. symptomlose Aspergillusbild. im äuss. Gehörg. Bd. II., Abt. II., S. 160.
8. Greene—Trans. Amer. Otol. Soc., 1869, I., p. 79.
9. Blake—Trans. Amer. Otol. Soc., 1871.
10. Knopf (quoted by Roosa).
11. Roosa—Amer. Journ. Med. Scien., Jan., 1870.
12. Burnet—Philadelphia Med. Times, VIII., 435, 1887-8: Arch. of Otol., Vol. X, p. 319: Amer. Journ. of Otol., 1879, I, 93: Med. and Surg. Reporter, 1889, LXI., 539.
13. Hassenstein—Arch. f. Ohrenheilk., Bd. IV., S. 164.
14. Steudener—Arch. f. Ohrenheilk., Bd. V., S. 163 (tricotheceum roseum): also Hungar. Med. Chir. Presse, 1868-9 S. 12, 16, 19, (mucor mucedo).
15. Troeltsch—Die Myringomyces (ascophora elegans). S. 44.
16. Wreden—Arch. f. Ophthal. u. Otol., Bd. VI., No. I, S. 87, (otomyces purpureus).

17. Bezold—Vortr. im ärztl. Verein Münchens. 1880.
18. Theobald—Amer. Journ. Otol., III., 119. 1881.
19. Rankin—Pittsburg Med. Journ., II., 103, 1882.
20. Von Gohren—New Orleans Med. and Surg. Journ., 1882-3, n. s. X., 507.
21. Wagenhäuser—Befund d. Mucor corymbifer. Arch. f. Ohrenheilk., Bd. XXI., S. 270.
22. Vallentin—Ein Fall von Soor d. Mittelohres. Arch. f. Ohrenheilk., Bd. XXVI., S. 81.
23. Lindt—Ueber einen neuen pathogenen Schimmelpilz aus d. menschl. Gehörg. Arch. f. Exper. Pathol. u. Pharm. Bd. XXV., S. 257. (eurotium malignum).
24. Pollitzer—Die parasitäre Entzünd. d. äuss. Gehörg.. Wiener med. Woch., 1882, No. 29.
25. Kirchner—Pityriasis versicolor im äuss. Gehörg. Monatschr. f. Ohrenheilk., 1885, No. 3.
26. Bishop—Charlotte Med. Journ 1895, VII., 145.
27. Birkett—Montreal Med. Journ., Vol. XXX., p. 382.
28. Mathewson—Montreal Med. Journ., Vol. XXXII., p. 280.
29. Buller—Reference Handbk. Med. Scien. Vol. III., p. 616, 2nd. edit.

CIRRHOSIS OF THE LIVER: SYNOPSIS OF CASES OCCURRING IN THE ROYAL VICTORIA HOSPITAL, 1894-1903.

BY

R. M. HARDISTY, M.D., Externe in Medicine,
Royal Victoria Hospital,
Montreal.

The clinical records of the Royal Victoria Hospital show 52 cases of cirrhosis of the liver admitted since 1894, the time of opening of the hospital.

AGE: The age of the patients affected, varied within wide limits. The oldest case was 66 years and the youngest six; while the average age of all the cases was 41.5 years. In the majority of cases the patients affected were from 40 to 45 years old; five cases were under nine years of age.

ALCOHOL: Of the 52 cases 35 used alcohol and 26 of them are known to have used it in excess, from periods varying from one to 35 years. The remaining cases showed an actual absence of alcohol as a factor in the disease in 10 cases, while in seven cases there was no satisfactory history obtained for or against its use. As to the form of alcohol used, this is mentioned in only 17 cases; nine patients used spirits alone, six used ale and spirits both, and chiefly gin; in two cases ale alone was employed. The amount taken in individual instances is mentioned in but few cases, the excess being extreme in some. The relation between the amount of alcohol used and the rapidity of the disease could only be observed in the following way:

In 1½ cases where great excess of alcohol had been employed the

course of the disease was apparently not very rapid. Only three died in the hospital and the average duration of the 14 cases, up to the time they were discharged or died was 26 1-2 months. The average duration of the disease in the three cases which died in the hospital was slightly over 21 months. Autopsies were performed in two of the cases and in both advanced atrophic cirrhosis was present. Clinically seven of these 14 cases showed extensive disease.

In only one case where there was a history of alcohol did the individual become a total abstainer, and this was a case of excess lasting over 30 years, the abstinence itself lasting only 10 months. In this case there was a history of cirrhosis beginning four years before abstinence. In five other cases there was a history of former excess which had been given up for periods varying from a few months to 36 years, the individuals being only moderate drinkers.

Of the five cases under nine years of age alcohol was definitely absent as a factor in three, not mentioned in the other two cases. Three had some definite infection within five years and one had pericarditis and endocarditis.

INFECTIOUS DISEASES: Infectious disease as a cause was more or less definite in 11 cases, the infection being within five years from the commencement of the present trouble. In two there was pneumonia and enteritis; in two enteritis alone; typhoid in two; scarlatina in one; influenza in two; and in another measles, chicken-pox and mumps were all present. In three there was a history of acquired syphilis, while in five others it was merely suspected. In 27 cases enquiry was made for other venereal disease; the following results were found:—In four there was a history of former gonorrhoea (either acute or chronic) but in no instance was there any evidence of the association between that disease as an etiological factor and the cirrhosis; two others gave a history of having had soft sores. In other cases there was no definite information as regards venereal disease. Malaria was present in one case. Dietetic excesses were mentioned in two cases with regard to heavy eating, but in this regard the records were incomplete.

Sixteen cases showed some signs of cardiac lesion. As regards the forms present in these various cases of cirrhosis of the liver, there was evidence of a mitral endocarditis in 10 cases, there were no aortic cases, while only one showed a relative insufficiency of the mitral valve with other signs of incompetency of the circulation. The heart was definitely enlarged in seven cases, and myocarditis was mentioned as being present in two instances; pericarditis was present in one case.

Malignant disease of the breast was present in one case with a history

of removal of the growth 19 months previously; this patient died and an autopsy was performed. The liver showed well marked atrophic cirrhosis.

In four cases no cause whatever for the condition could be made out from the reports, but in this respect the reports were very incomplete; in these cases two were atrophic and two hypertrophic.

CLINICAL DIAGNOSIS: In the 52 cases there were 16 diagnosed as atrophic cirrhosis of the liver (32 per cent.), 18 were diagnosed as hypertrophic cirrhosis of the liver (34 per cent.), while in 14 the mere diagnosis of cirrhosis of the liver was mentioned without specifying its exact nature. Of this last group of cases however, the reports mention diminution in size of the liver in three cases, while in seven there was enlargement, and no definite change in size was made out in four. Syphilitic cirrhosis was made out in but one case. There was faulty diagnosis in two of the cases, in both of which merely a coincident myocarditis was recognized. In these cases the autopsies showed a condition of cirrhosis of the liver, not that of cardiac disease but rather of a toxic type. In one case no diagnosis whatever was made in the report.

RESULTS: Fifty-one cases are recorded with results of treatment; 33 were discharged and 18 died. Of the cases that were discharged improvement was noted in 17 cases. Nine cases were tapped from one to eleven times; of these four were discharged improved. Two exploratory operations were performed. Improvement was noted in four cases of the atrophic type and 10 of the hypertrophic. Of the 18 cases that died toxæmia was the cause of death in nine cases. In the atrophic cases (13 out of the 18 deaths) the causes of death were as follows:—Toxæmia, six cases; toxæmia and hæmatemesis, one case; toxæmia and repeated hæmorrhages from bowels, one case; hæmatemesis, repeated and large, one case; small hæmoptysis, one case; ruptured œsophageal vein and hæmorrhages into stomach (not vomited up), one case; heart failure, two cases. In the three hypertrophic cases the cause was asthenia. Heart failure was the cause of death in one of the cases diagnosed clinically as myocarditis which upon post mortem examination turned out to be pericapsular cirrhosis and myocarditis. In the remaining case, that died, one of syphilitic cirrhosis no immediate cause of death could be made out from the records.

SYMPTOMS: The length of time the trouble lasted from the onset of symptoms till discharge or death, taking all the cases except five, where no definite onset could be given, averaged roughly a little less than 15 months. In one case the onset seemed to be quite acute,

of six days duration from the history; the longest was eight years. In this case the atrophic form of cirrhosis was present and with the exception of some slight abdominal pain, which had not inconvenienced the patient, the first symptom was copious hæmatemesis occurring several times within a few hours. The longest case was also atrophic. The average duration of the (diagnosed) atrophic cases of cirrhosis was a little less than 1½ years; just over two years in the (diagnosed) hypertrophic cases.

Of the 18 cases which died in the hospital the average duration from time of the first symptom to death was just under 13 months. Of the atrophic, the average duration was 14 months, while in the hypertrophic it was 20 months.

As regards any relation between the etiology and duration, the following facts were observed: There did not seem to be any connection between etiology and duration. Taking alcohol as the chief etiological factor we found that although the average of all the cases was about 15 months, in 14 cases selected from all where there had been great excess, the average duration from onset until time of discharge or death was 26½ months, and in four cases where no cause at all could be made out, the average duration from onset till discharge or death was just under 12 months.

DYSPEPSIA: Anorexia, nausea and vomiting were present in 40 cases; they were very marked in 24, slight in 16 and not present whatever in 12. Of these 12 cases seven were atrophic, five hypertrophic.

EMACIATION was present in some degree in 37 cases, well marked in 18 and present to a slight degree in 19. The atrophic form showed the greatest amount of emaciation as compared with other forms, in the proportion of three to one; it was not at all present in 24 cases, of these 14 were of the hypertrophic form, 10 the atrophic form.

HÆMATEMESIS occurred at some time or other during the course of the disease in 22 cases (43 per cent.); it did not occur in 30. Of the 22 cases, the hæmatemesis was very severe in nine, recurred in seven, and was associated with atrophic form of cirrhosis in eight cases. Of the 30 cases where this condition was absent there were 17 of the hypertrophic form, 12 of the atrophic and one syphilitic. The relation between hæmatemesis and other signs of portal obstruction was evident in the following way: Where hæmatemesis occurred the evidence of other signs of portal cirrhosis was more or less marked in each case. Dyspeptic symptoms were marked in 17; enlargement of superficial abdominal veins in nine, hæmorrhoids in six, spleen palpable in nine; melaena occurred at some time in nine cases, ascites was also present in

nine, that is, an average of three of these six symptoms were present in each case.

MELÆNA was present in 14 cases, not present in 38. Of these 14 cases it was associated with hæmatemesis in 10, while in three it appeared independently of it, once in the atrophic form repeated and severe, and twice in hypertrophic form, slight, and did not occur while in the hospital. The relation between melæna and portal obstruction was noted in the following way: Where melæna occurred dyspeptic symptoms occurred in nine cases, palpable spleen in six; enlargement of superficial abdominal veins in six, hæmorrhoids in four; ascites in six.

HÆMORRHOIDS had been or were present at time of examination in 11 cases, mentioned as not being present in 12, and not mentioned at all in 29.

ASCITES was present in exactly one half of all the cases. The relation between this and other signs of portal obstruction was observed in the following way: In 26 cases in which ascites was present, dyspeptic symptoms were present in 16; hæmatemesis in nine; melæna in six, hæmorrhoids in four; palpable spleen in seven and dilated abdominal veins in 12. The ascites was present in the hypertrophic form in four cases.

THE SPLEEN could be palpated clinically in 16 cases; not palpable in 36. Of the cases which could be palpated, eight were atrophic and eight hypertrophic. The relations between the spleen and other signs of portal obstruction were noted as follows: Of the 16 cases, portal obstruction was very marked in six; all atrophic. Dyspeptic symptoms were well marked in 12; hæmatemesis in nine; melæna in six; ascites in eight; hæmorrhage in two; the superficial veins were mentioned as being distended in 15 cases.

ŒDEMA of the legs, varying from a slight degree to one very marked, occurred in 23 cases. The relation between this and ascites was evident in the following way:—Of the 23 cases where œdema of the limbs was present, 19 occurred with ascites; of the four occurring melæna in six; ascites in eight; hæmorrhoids in two; the superficial veins were mentioned as being distended in 15 cases.

THE LIVER was made out clinically as enlarged in 30 cases, in eight dulness was smaller than normal; in seven no enlargement was found and in seven other cases its size could not be satisfactorily made out. The relation between the liver and the signs of portal obstruction were definitely made out in 17 cases; it was small or about normal size in 10 and there were all the factors incident to portal obstruction. In seven cases the liver was made out as enlarged and showed signs of portal obstruction, while in two there was diminished

size of the liver with few or no signs of portal obstruction. In these cases, which were very similar, the first symptom was copious hæmatemesis. (1) A commercial traveller, three weeks before admission while about his business vomited blood twice in large quantities and said that at the time he had never felt in better health; on admission he showed none of the signs of portal obstruction, e. g. hæmorrhoids ascites, spleen, abdominal veins or œdema and was not emaciated. The liver dulness extended from the 6th rib to 2 in. above costal margin in nipple line. (2) This patient was at work as usual, feeling quite well, when he said he tasted blood and then vomited large quantities, had no other symptom except the rather frequent epistaxis and a history of some mild abdominal pain four years before. On admission he showed no signs except that the liver was made out to be small, being only 2 in. vertically in nipple line.

POST MORTEM: Of the 15 post mortems the liver was increased in size in four cases, diminished in 10, about normal in one; in four cases is was hobnailed, in six granular, in one smooth on the surface, while in two it was lobulated with stellate scars (probably syphilitic). In 12 of the cases the fibrosis was very extensive. The relation between the findings of the autopsies and the clinical symptoms was of special interest. In 10 cases there was diminution in the size of the liver with a clinical history of portal obstruction. It was remarkable to notice with what variations the portal obstruction presented itself. With a marked atrophic cirrhosis the following signs and symptoms of portal obstruction were present in the following regular manner: Ascites was present in eight cases, with all the other signs of portal obstruction; in six cases there was gastro-intestinal catarrh; hæmorrhoids in two cases; enlarged spleen in nine, and distension of the œsophageal veins in five.

Of the 15 cases the spleen was found enlarged in 12, while in other cases where it was not enlarged the capsule and trabeculæ were found thicker than normal. It could not be definitely stated where the spleen was small that the cause lay in the thickening of the capsule.

The heart in these cases was chronically diseased in nine instances; there was brown atrophy in seven cases; in one fatty degeneration, and in two myocarditis.

Tuberculosis was present in three cases, one in lungs and intestines, the other two in lungs, one of which was miliary. There were five cases of pleurisy.

Nephritis was mentioned in only six cases, while cholecystitis was present in three.

In addition to the ordinary forms of cirrhosis already mentioned an examination of the post mortem records shows 19 cases of early cirrhosis which had not been recognised clinically and had been treated in the hospital for various other troubles. In most of these cases the cirrhosis was fairly well marked and recognisable with the naked eye, while in others it was only recognised under the microscope. Of these 19 cases eight gave a history of alcoholic excess, three were moderate while in eight there was no history of its use whatever.

Twelve of the cases had one or other form of heart lesion, while in two there was a suspicion of a specific disease. In one there was a history of acute rheumatism a few months previous to the terminal illness. The cardiac diseases mentioned were, aortic two, mitral three, myocarditis and arterial sclerosis three.

In these cases the liver was enlarged in eight, the fibrosis was periportal in character in 11, pericellular in only four, while in the remaining four there was cyanotic atrophy and induration, more or less advanced.

REMARKS: The above cases show that in its onset cirrhosis of the liver may occur at almost any age. It was present in one patient at the age of 60, and five children under nine years of age were also affected.

In the diverse etiology alcohol is but one of many factors; in more than one-fifth of the cases there was a definite absence of an alcoholic history. Where alcohol induced the disease it was found that ardent spirits were most effective; the quantity taken did not seem to affect the duration of the disease.

Infectious diseases seem to be a common etiological factor. Of eleven cases in which infectious disease seemed to be the main cause, five had absolutely no alcoholic history whatever, and four were extremely moderate with its use. Where the children were affected the relation between infections and cirrhosis was very evident, this finding being in accord with several authorities.

It was noteworthy too that in sixteen cases of pure cirrhosis the cardiac lesion seemed to be a secondary factor, there being either endocarditis or myocarditis.

The duration of the disease, averaging in the majority of cases 15 months, was, as a rule, longer in the hypertrophic cases. One patient, however, with atrophic cirrhosis had been ill for eight years.

With regard to the symptoms, it is interesting to note that dyspepsia in one form or another may be quite absent; certainly in 12 cases there was no evidence whatever of gastro-intestinal disturbance. Emaciation too was absent in a large portion of the cases.

Where hæmatemesis occurred, a fatal result seemed to come more rapidly and in only one case was death long delayed after this event had transpired (four years). Of the nine patients who died in the hospital with a history of hæmatemesis, three died in consequence of this symptom, while in the other cases, except the one above mentioned, death followed after a period of several months.

The causes of death were in the majority of cases, toxæmia or hæmorrhage from the stomach or intestines. The majority of the fatal cases showed the hypertrophic form to be that of greater duration, thus substantiating the evidence as given by the clinical history.

The symptoms of portal obstruction showed very great diversity in their incidence. While hæmatemesis occurred in thirty cases and ascites was present in twenty-six patients, enlargement of the spleen was found in relation with symptoms of portal obstruction elsewhere, it could not be said that a thickening of the capsule accounted for all cases in which that organ remained small.

URIC ACID.

ITS PHYSIOLOGICAL AND PATHOLOGICAL SIGNIFICANCE.

BY

J. T. HALSEY, M.D.

Probably no other substance has been the subject of more investigation by medical men than uric acid. The great interest which this substance has had for physicians ever since its discovery by Scheele in the same year which gave birth to the United States of America, an interest which has by no means lagged in recent years, is responsible for the fact that there is now extant an enormous literature dealing with uric acid in its various aspects. In the first two volumes of the *Ergebnisse der Physiologie*, H. Wiener, of Prague, has contributed two very extensive and valuable monographs on uric acid and its physiological and pathological significance. These two articles present very clearly and to a very considerable length the results of the various investigations, almost countless in number, which have had for their object the clearing up of many problems connected with uric acid. It would therefore seem worth while to endeavour to present to the readers of this JOURNAL, as far as it is possible within the limits of a short article, the more important facts.

Wiener takes up the subject, first, from a physiological point of view, and secondly, from the pathological stand point, tracing the historical development of this extensive and still obscure chapter in physiology

and pathology. It will be quite aside from the purpose of this article to even mention the many erroneous views, theories and results, which have led to such confusion in the minds of the majority of medical men with regard to the significance of uric acid. It would seem best to present as concisely and clearly as possible what we at present feel that we may claim to know with a fair degree of positiveness.

The first question we would endeavour to answer is: "What are the sources of the uric acid, which appears in the excretions and is found in the body?" If we leave aside, as being apart from our special field of interest, the sources of uric acid in birds, and confine ourselves to its sources in the bodies and excreta of man and the allied mammals, we shall find that we are able to state to-day, that uric acid may be manufactured either as a result of the breaking down of more complicated substances, or through synthesis from simpler ones.

The first of these methods is the one which plays the more important role, quantitatively at least. Although early investigators were inclined to look upon uric acid as a substance which resulted from the oxidation in metabolism of all forms of proteids, we now know that this is not the case. Such proteids as egg, or serum-albumin fibrin, ordinary meat, and many others, may be eaten, digested and consumed, and yet the uric acid in the body tissues and excreta remain unchanged. The ingestion of those complicated proteids known as nucleo-proteids, which are so abundant in the nuclei of cells of different organs, and play so important a part in the life and function of these cells when fed, is regularly followed by a marked increase in the uric acid in the blood and in the urine. Furthermore it has been established that in a number of conditions in which there is an increased destruction of the nucleo-proteid elements of the body (pneumonia, leukaemia, supuration), an increased amount of uric acid is excreted. We also find that the ingestion of some of the xanthin bases, which we know are contained in large amounts in nucleo-proteids, leads to an increased excretion of uric acid.

A priori, it was then not unreasonable to suppose that uric acid may be manufactured synthetically in man and other animals, just as we have long known is the case in birds. Recent investigations have furnished evidence that such a synthesis does go on. Lactic acid and other dibasic acids, or substances easily changed into these acids, such as glycerin, are combined with nitrogenous substances to form uric acid. However, under normal conditions, it is highly probable that this synthetic manufacture of uric acid takes place only on a small scale.

As regards the fate of uric acid, once it has been manufactured, we may believe that whilst a certain proportion of it is further oxidized

into simpler substances, a considerable amount is excreted in the urine. Although for a long time a number of investigators claimed that uric acid, when formed by metabolic processes, underwent no further change but was excreted unchanged, it has been rendered absolutely certain that under certain conditions at least a very considerable proportion of the uric acid thus formed is further oxidized. The evidence on which this rests is as follows: after extirpation of the kidneys the uric acid in the blood does not increase during the two or three days which intervene before death. If, however, not only the kidneys but the liver also is extirpated, there is a very marked increase of the uric acid content of the blood.

A view which one frequently meets with in literature is that the oxalic acid in the urine is a decomposition product of uric acid. This view is almost certainly erroneous, careful experimentation having shown beyond all reasonable doubt that none of the uric acid, which does undergo further change in the body, is changed into oxalic acid.

A number of investigators have had for their object the determining of the organ, or organs, taking part in the production or in the manufacture of uric acid. From these results it is quite certain that the cells of a number of organs, especially the liver, spleen and muscle, take some part in the manufacture of that portion of the uric acid which is derived from the nucleo-proteids. While in birds the synthesis of uric acid from simpler substances goes on in a number of organs, in man it takes place certainly in the liver and perhaps only there; at least it is highly probable that this synthesis is carried on in the other organs only in a very subordinate degree. Uric acid is destroyed chiefly in the liver, to a considerable extent in the muscles, and to a slight extent in the kidneys. It is possible that other organs too have the power of oxidizing this substance, but we have at the present time no proofs that this is the case. It is highly probable that the uric acid under normal conditions exists in our bodies in combination with complex organic substances, perhaps with nucleins, but of this we have no positive knowledge.

Many theories are based upon various premises in regard to the various factors governing the solubility and insolubility of the uric acid in the blood and in the body fluids, but behind these theories there are no experimental data which bear the test of close investigation. The acid is excreted in the urine chiefly as a primary sodium urate. The urea and some of the inorganic constituents of the urine, especially the secondary sodium phosphate, aid in keeping it in solution.

We may summarise our knowledge of the physiology of uric acid in comparatively few words: Uric acid is manufactured in the body from

the xanthin bases derived from the nucleo-proteids contained in the food ingested or derived from the tissues of bodies which are undergoing destruction. Although certain authors claim to be able to determine in given cases the relative amounts of the uric acid derived from the food (exogenous) and from combustion of body tissues (endogenous) their interpretation of their experimental data is open to much criticism. Another source, of whose relative importance we are unable to judge, is the synthetic manufacture of the uric acid from various simpler substances. A certain proportion of the uric acid is further oxidized in the body tissues and a certain proportion is excreted in the urine. We have at the present time no means of judging, even approximately, how much of the uric acid produced is excreted and how much undergoes further change. The liver, spleen and muscles are the organs, in which we know uric acid may be manufactured from the nucleo-proteids. The synthetic manufacture of the acid takes place chiefly, probably entirely, in the liver; we have no positive knowledge as to the combination or form in which uric acid exists in our bodies under normal conditions.

In considering uric acid from a pathological or clinical standpoint, it seems well to separate the condition or conditions known as gout, from the various other conditions in which we know there are certain anomalies as regards production and excretion of uric acid. Considering this latter case first, we may state that, in a very large proportion of those cases in which for varied reasons nucleated cells are being formed and broken down to a greater extent than normal, the uric acid is increased over the normal amount. Cases of pneumonia, particularly in the resolving stage, conditions associated with abscess or pus formation, various leukæmias, present examples of these conditions.

When we attempt to formulate any views or express any opinions in regard to uric acid in gout, we find that, in spite of the enormous number of painstaking investigations carried on by the most capable clinicians, pathologists and physiologists, the concrete facts of general application are few and far between. One thing we may say, and only one, with great positiveness, and that is, that in almost all, perhaps in all cases of gout, the blood contains more uric acid than the blood of the average normal healthy individual. At the same time the value of this one general fact is somewhat lessened by the fact that, in many conditions, which appear to have no relationships with gout, uric acid may frequently be found present in the blood in quite as large amounts, as in some cases of nephritis, the uric acid contents of the blood is markedly increased; we also find it increased in leukæmia and it may be increased in the blood after a meal containing large amounts of nucleo-proteid food.

The excretion of uric acid has been studied in hundreds of cases of gout, and yet we find that we can say little of general application about this. The uric acid excretion varies within normal limits in cases of chronic gout, and also during the periods between the acute attacks in those individuals who are subject to gout. It is noteworthy, however, that in these cases the variations in the uric acid excretion from time to time is very great, now greater, now lesser amounts being excreted. In the acute attacks, however, there are marked changes from the normal; here there is regularly at some time during or after an attack an increase of the uric acid and allied substances excreted as compared with the amounts excreted between the attacks, but this increased amount of uric acid excreted is not absolutely so great as to be larger than the amounts often excreted by normal individuals. There is also often a decrease in the uric acid excreted during the period just before the onset of an acute attack.

It had been thought that careful study of the metabolism of gouty individuals might furnish results which would justify the formation of an opinion as to the significance of uric acid in this disease, but we may say that these studies have thus far sufficed only to make confusion worse confounded. The contradictory results obtained by different observers make it very difficult indeed to give a summary of these results, much less to express an opinion of their significance. It seems fairly certain as a result of these metabolism investigations that, in gouty patients, the balance between the income and outgo of nitrogen varies much more than is the case with normal individuals. In some the nitrogen excreted may exceed the nitrogen ingested, or just the opposite condition may occur. Very striking indeed is the nitrogen retention, which is found in some gouty cases. This nitrogen is probably not retained as proteid nitrogen, the ordinary method of nitrogen retention. It is perhaps retained in the form of uric acid or other purin substances, but the amounts retained are so large as to make it difficult to believe that this is the case.

When one seeks explanations for these few facts which are known about uric acid in gout, firm ground is left behind. Increase in the uric acid content in the blood may be due to (1) diminished excretion, (2) to increased production, or (3) to diminished destruction of the product itself.

The first explanation is favored by many observers, they believing that a faulty performance of its function by the kidney is responsible for the accumulation in the blood of abnormally large amounts of uric acid. Those holding this view point to the frequency of kidney lesions in gouty patients, and to the frequency of gouty deposits in kidney

cases. On the other hand, those, who do not accept this explanation, instance cases in which severe kidney lesions exist with no increase in the amount of uric acid in the blood and also to cases of gout with increased uric acid content in the blood but no recognisable kidney lesions. Moreover it is found that gouty patients, after the ingestion of nucleo-proteids in large amounts, are able to excrete, as do normal individuals, the increased amount of uric acid which is derived from this nuclein-rich food. Still many authors hold fast to the view that faulty kidneys are responsible for the increased uric acid in the blood, an opinion, which at the present time lacks proof but which still cannot be absolutely controverted. Others would explain the retention of uric acid through change in the chemical composition of the blood which alters the solubility of uric acid therein and leads to its deposition as urates; Roberts in his article in Allbutt's System suggests that the diminished alkalinity of the blood is responsible for the deposition and retention of the urates, but diminished alkalinity of the blood has never been shown to be a constant phenomenon in gout. Pfeiffer takes the view that in gouty individuals the uric acid exists in the blood in a different form or combination than normally and therefore does not pass through the kidney; the "proofs" which he advanced to support this view have, however, been shown to be based upon faulty methods. The increased uric acid content in the blood may be due to a preceding retention, but this does not explain its being so constantly and continuously increased in gouty patients.

The second explanation for the increased uric acid content of the blood, that it is due to an increased production of the uric acid, is one for which there is at the present time no very positive proof for or against. There are a few facts, however, of possible significance in this connection. In gouty patients we find no evidence of increased cell destruction. There is therefore no great probability that in these cases there is more uric acid manufactured from the nucleo-proteids than is the case in normal individuals. The clinical relationship of oxaluria and the uric acid diathesis is possibly of some significance when we remember that the feeding of certain substances, among others the various dibasic acids, leads to increase in the amount of both oxalic acid and uric acid excreted in the urine. It is therefore possible that in those cases of gouty diathesis with oxaluria, the abnormal amounts of uric acid and oxalic acid are both due to the same cause. An increase in the manufacture of these various substances (dibasic acids among others) which may be looked on as antecedents to both uric and oxalic acids, could very easily be a cause for an increased manufacture of both the oxalic and uric acids. Those who would

explain the increased uric acid content of the blood by the diminished destruction of uric acid are unable to point to any experimental or clinical data supporting their view. At present it is impossible to decide between these various views. Perhaps the causation of the increased amount of uric acid in the blood is not the same in all cases.

When we come to enquire into the role which the uric acid plays in the production of the symptoms of disease we are again at fault. There is no question that in the inflamed joints, as well as in the tophi, there are depositions of urates, but we are unable to state whether these depositions are causes of the inflammatory conditions or whether they are themselves the results of a preceding inflammation. It is possible that the increased uric acid contents of the blood favours the development of inflammatory conditions and that the local changes at the seat of inflammation are thus responsible for the occurrence of the deposition, or the increased uric acid content of the blood may be alone responsible for the depositions and these cause the local inflammatory changes.

Against either of these views there is much to be urged and neither would seem to offer a satisfactory explanation. Pfeiffer advanced as explanation for these depositions views similar to those mentioned before as his explanation for the retention of uric acid. Others see in diminished alkalinity of the blood the determining factor for the deposits, but this diminished alkalinity has not been demonstrated. It is in the highest degree probable that the abnormally large uric acid content in the blood is not alone responsible for the inflammatory changes or deposits, for in many conditions we find this increase in uric acid can exist continuously and no local inflammation result. We can only mention that certain authors have recourse to a neurotic causation of the local changes but in support of their views they have adduced only hypothetical arguments. Van Noorden and others have advanced the view that the local inflammatory changes are caused by a sudden increase in the uric acid content of the blood leading to a supersaturation and this leading to a precipitation of urates. But the blood of patients with acute gout is still capable of dissolving considerable quantities of urates.

We thus see that by a process of exclusion we are driven to one of two positions. We must believe either that in different cases of gout the acute joint symptoms are due to varying causes or we must have refuge in the view that the cause lies in the combined action of the abnormally large amounts of uric acid and an unknown substance or substances. This last view is one which has been gaining ground of late and is the one to which the writer most inclines.

In the light of our present knowledge it would be unprofitable to discuss uric acid in its relation to the various symptoms to which it has been placed in a causal relationship by many authors. It may not, however, be out of place in such an article as this to protest strongly against several errors all too commonly committed by many of even our best clinicians. No estimate, of even approximate value, can be made of the existence of abnormalities in uric acid excretion by merely noting the presence or absence of deposits in the urine. A urine very rich in uric acid may show no deposition, while one containing only normal amounts may deposit large numbers of uric acid crystals.

Even where uric acid and urea are determined accurately, and in the full twenty-four hour urine, such estimates are of no value unless the quantity and character of the food ingested is borne in mind, and are of little value unless these determinations are frequently made. It should be borne in mind that active cell destruction usually is followed by increased secretion of uric acid and that such conditions have, it may be confidently asserted, no relationship to gout.

There are no more disheartening or discouraging chapters in the history of "rational medicine" than many of those which deal with gout and the gouty diathesis. Lack of careful examination of evidence, confusion between hypothesis and demonstrated fact, illogical reasoning, and much inexact observation and faulty reporting of observation, have led in this field to the existence and acceptance of erroneous views of clinical conditions and, based thereon, a visionary and extravagant therapy, more to be condemned than the baldest empiricism.

BICHAT, 1771-1802.

BY

JOHN McCRAE, B.A., M.B.

When Napoleon Bonaparte was learning to walk with the first steps which must have been poor precursors of the stride that was to reach from Madrid to Moscow, Marie François-Xavier Bichat was born in Thoirette of the Jura district, and when Napoleon was nominated First Consul, an early stage on his world's journey, Bichat had set his house, and much else, in order and gone hence.

1771-1802: The dates recall much world's history, and in France of all countries, there was overturn of everything, even of mind itself, so that it would seem to the twentieth century reader as if there had never been so arid a plain or so waste a field. Yet through this time one man at least was doing what lay in him to do, was collecting and

ordering truths that had hitherto lain scattered, dim, and disordered. This too he must have done amid much distraction of cannon smoke and shoutings, and to-day when the smoke is entirely blown away and the shoutings are all fallen silent, lo, his work endures in an ever-multiplying harvest! Such a man cannot but interest! It is not so much the bare facts, dates and deeds in a cold account-book way that we need to know, but rather what there was in this man or in his surroundings that impelled him, when so many of his countrymen were seeking far other ends, to search so diligently after enduring facts. Was he tempted to join in the shouting? How did Lyons look to him when he looked out over her troubled roofs? Did his blood quicken at the shouts of mobs that surged past a mile or a block away? In the account-books there is scarcely a cord to tie him to the momentous events that surrounded his entire life. The question for us is, who was Bichat the man? for, in a way, we know well who was Bichat the physician.

Pictures there are extant, three of which one may see; unlike enough are they! One, plainly a sketch, shows him as a handsome man with clear eye, prominent nose and lips, a decisive chin; but one cannot but think that this full face is more likely to be the man. Here is a forehead, and straight, incisive, almost squinting eyes; a power of concentration lies in them, in witness whereof we shall later see his "21 differentiated tissues, distinguished without the microscope." His eyes are his second mind. The physician's eye, he tells us, has not been hitherto sufficiently used. Attend to this, future generations! And, hearing him, they have, in some lesser or greater degree.

Such was Xavier Bichat as he looks to us. The impulse surely lay in himself. He said to his friend Roux one day: "J'irai loin, je crois." Strong in confidence of his own powers, he was not mistaken: "J'irai loin." A far way to the heavy-footed ox is not a far way to the fleet antelope, and it is space one measures, not time.

Of his early training, we know little; at school at Nantua, at a e-minary at Lyons and finally at Montpellier, he was brilliant, it is said: after this, he was allowed, or perhaps driven, for all we know, to help his father, who was a physician, and to learn what he might of the art. His tastes had tended, hitherto, to mathematics and natural science; however, that is not to be his field, and he fares, before long, to Lyons. At Lyons are greater facilities, and the great Antoine Petit, under whom, at 20 years of age, Bichat appears as student. No place for a devotee of study is this! Two years ago fifty thousand Federationists—among them Madame Roland steps on the stage of the world

for the first time—had met at Lyons and made a Universal Concord. In Bichat's second year with Petit, comes rumble of far off cannon, indicating something else than Universal Concord, and one Charlier—his whole soul lit up with the fire of enthusiasm that he has kindled at Marat's altar—addresses the Lyons Jacobins, dagger in hand: and the straw is presently alight. In a few months, Charlier's head thuds into the basket—not before he has threatened. "My death shall cost this city dear." Truest of words! In August Dubois-Crancé, with 70,000 men, and the artillery of several provinces, is bombarding Lyons day and night; "the very Hospital will be battered down and the sick buried alive. A black flag hung on this latter noble edifice, appealing to the pity of the besiegers: in their blind wrath they took it for a flag of defiance, and aimed thitherward the more." Here we need not doubt was Bichat, for we read that "he behaved with courage and devotion." One night with a world-shaking crash, the arsenal blows up, carrying 117 houses with it. Then for weeks, famine, ruin and fire! Women and children sent out are returned by the besiegers! After 70 days, the garrison sallies out, is almost annihilated and the city surrenders; 70 men are shot en masse and thrown into the river: a long grave is dug, and two hundred and nine men shot on its edge, the spade finishing what the bullet had not completed. Truly Lyons is not a suitable place in these days for the study of medicine, and so Bichat goes to Paris; it is said that he found Lyons unsafe, though we know no more of his political views than this; his intentions are to be an army surgeon, and he enrolls with Desault. On one occasion the student-speaker for the day being absent, Bichat takes his place, and by his manner and evident mastery of the subject amazes the clinician, who speaks of him to Desault. From this time, Bichat became a protégé, almost a son to Desault, and hereafter lived at his master's home. So through 1794, when the roll of the tumbrils laden with Robespierre's 1200 enemies was resounding over the whole world, Bichat studied within ear shot. A revolution without! yes, Citizen Bichat, and one within also. Even now must his keen mind have begun to question the divine right of philosophic theories that had hitherto ruled: even now, was his guillotine being built that was to lop off so many stagnant ideas, and make way for a freer growth.

In 1795, Desault died, and Bichat supported the wife and infant son, who had been left in poor circumstances; more, he built to his late master a monument, by collating his teachings in surgery and publishing them in 1797 as "*Oeuvres Chirurgiques de Desault*"; he later edited another publication of Desault's work. In this same year, he began private courses of lectures upon anatomy and operative

surgery. Around him waged the Revolution of the 18th Fructidor, and he, citizen of a larger republic, worked day and night, with feverish energy, adding to his already heavy courses, one on physiology: he gives three lectures daily, prepares his own dissections, directs the practical work of 80 students; makes animal experiments, privately and for his classes: with Corvisart has had time to found the "Société Médicale d'Emulation" (yet extant), writes continually, has scarcely time to reread or correct his proofs—till one day a hæmorrhage occurs from the lungs. Pallid death is already shuffling on the doorstep! Yet has it been even the time of Fructidor with him; he has written his "Traité des Membranes," for which all the titles and privileges of the Ecole de Médecine are conferred upon him. It is a proper classification of the different membranes, describing correctly the synovial sacs, and indicating his idea that each primary tissue has a vitality of its own—of which we may see more later.

Outside, the Directory is vanishing into thin air. Napoleon wins in Egypt, loses in Aboukir Bay, lays his strong hand on France, and shatters Austria at bloody Marengo—while in the house in the Rue du Four, goes on quietly the struggle with bodily weakness, the lectures are given, the dissections are prepared, the books written.

In 1800 Bichat publishes "Recherches sur la Vie et la Mort," and is appointed, barely 29 years of age, a physician to the Hôtel Dieu. Truly this man can speak and has something to say—the latter being probably a requisite with Citizen Bichat, before he does speak. Listen! "You may observe diseases of the heart, lungs and abdominal viscera night and morning by the sick bed for twenty years, yet the whole furnishes merely a jumble of phenomena which unite in nothing complete; but if you open a few bodies, you will see the obscurity speedily give way—a result never accomplished by observation if we do not know the seat of the disease." Remember that hitherto the philosopher and the glittering generality have had wide sway. This man can speak with authority; one of these winters, he has examined 600 bodies, has lived and slept in the autopsy room. Without the microscope, he has differentiated 21 different kinds of tissue, which he formulates as the chemist does the elements; he describes the alimentary canal as divisible into its mucous, muscular and serous layers. Much he has to say in his "Life and Death" upon vital properties, sensibility, contractility and irritability in which we need not follow him; indeed, some of it makes hazy reading at the best; we are concerned not with the cutting of the individual stone, but with the lines of the finished structure.

"If I have made such rapid headway, it is because I have read little!" he says to his students. The theory he represents may be

dangerous to other men but not to himself. "Books," he says, "are merely the memoranda of facts. But are such memoranda necessary in a science whose material is ever near us, where we have, so to speak, living books in the sick and the dead?"

He divides peripneumonia into pleurisy, bronchitis and pneumonia proper; this man is not an unobservant reader of his books, we see. No printed book was as yet able to tell him the following: "As every tissue has everywhere a similar disposition, since wherever it may be, it possesses the same structure, and the same properties, so it is clear that diseases must be everywhere the same. Whether the serous tissue belongs to the brain, as the arachnoid, to the lungs as the pleura, to the heart as the pericardium, to the abdominal viscera as the peritoneum, it takes on inflammation everywhere in the same way."

1801! Abroad the Napoleonic league against Britain upon the sea was crushed by Nelson at Copenhagen, and at home, Citizen Bichat quietly lays the foundation of histology in "*L'Anatomie Générale appliquée à la Physiologie et à la Médecine.*" On, feverishly on! Has this miracle of labour time for aught else? Yes, he has time to impress upon his fellows that he is modest, disinterested, kind, he has time to help his students, especially those who are poor: there is even a hint of qualities of a less high order, of looseness of life, but we can regret these uncertainties, and hide them behind many golden deeds of which we truly know, such as the gratitude which prompted the publication of his master's works, and his kindness to Madame Desault through his whole later life.

He is now nearly through those "nine important volumes" of his! Between therapeutic experiments at Hôtel Dieu, with forty assistants, conducted upon single drugs, combinations of two and three drugs, and so on, amassing facts, he has yet succeeded in getting written the first two volumes of "*Traité d'Anatomie Descriptive.*" Volumes three and four will not be forthcoming, save by another hand.

Coming from the autopsy room where all evening he has worked in a fetid air that drives away his assistants, he falls upon the stair at the Hôtel Dieu, is carried home, and a few days later dies of "a malignant fever," in the arms of Madame Desault to whom he has been a devoted son.

What has he accomplished? It is not a requisite that you should be led through a digest of the "nine important volumes"; he was at once anatomist, physiologist, histologist and therapist: most of all he was physician; there is much of his work scattered through the foundation of medicine; some has not stood the strain and has been crumbled to dust; time has sorted it for us. It is necessary that we know what roads his restless energy has pointed

out for us, and how it came that he, a mere youth, has been able to impress a science thus: he found that anatomy was a different thing from what men had hitherto supposed, that anatomy was to be learned by the eye, by the finger, and not by the ear. "Physiology," said he, "needs rebuilding." He applied himself earnestly to the cultivation of inspection, accurate observation, experiment, and decried theory that did not go hand in hand with fact. Robert Knox, evidently a living man of our own day, writing in the *Lancet* of 1854, says that he could not understand anatomy till he found a copy of Bichat's anatomy that he read in 1811—and this, observe, is a man of but yesterday, as it were one of ourselves, who found the anatomy books of 1800 very obscure. Was it not a great thing to make men know that a science can be built on thousands of isolated observed facts? If these facts have been truly observed, well and good! But if not—there, my learned predecessors, lies your pitfall! "How petty are the reasonings of a multitude of physicians great in the eye of the public, when investigated not by the light of their own writings, but in the cadaver!" This is not the young man of thirty years, who speaks, but the old man of six hundred autopsies in one winter, who will make shift to sleep in his work-room to save time, who will not mouth a theory when he can uncover a fact with the same expenditure of energy. His methods may be well understood, if one looks at the therapeutic work which he undertook in *Hôtel Dieu* to make headway, if he might, against the reigning empiricism. He and his forty made careful pharmacological experiments upon animals, observed ceaselessly, in the wards, the actions of drugs, alone and combined one with another. Little record of Bichat remains for us in that domain. "This way, at least," said he, "lies your road." There are few men to whom it is given to work upon details as he worked, and not to lose the broader vision. With Bichat it was ever there; he never seemed to forget that each detail had its place, and its littleness proportionate to the whole plan. In witness whereof, read the titles of his later works, and see their wide scope; he learned his technique and applied it at once upon large canvasses. Lastly, what shall be said of his tireless energy? This man, more than others, believed, with his whole soul, in work; a high—pressure life, that had to get a certain thing accomplished, was his. Death always comes too late to catch by surprise such a man as this.

1802! Hardly yet has Napoleon Bonaparte, his contemporary, been named First Consul; yet far ahead is the splendor of those gigantic struggles that shook the civilized world; and for Bichat, two years younger, all is in the past. Corvisart wrote to Napoleon: "Bichat has died on a battle field that numbers many victims; no man in so short

a time has done so many things and so well!" Perhaps it was a fellow-feeling, certainly it was an admiration of this young Titan, that prompted his response. "I beg that you will have placed in the Hôtel Dieu, a marble, dedicated to the memory of Citizens Desault and Bichat, which shall attest the gratitude of their contemporaries for the service which they have rendered, one to French surgery, of which he is the restorer, the other to medicine, which he has enriched by many useful works. Bichat would have broadened the domain of this service, so important and so dear to humanity, if pitiless death had not struck him down at the age of 30." His eulogist, Levâcher, spoke before the society of which Bichat had been a founder: "Let Bichat be at the same time the guide and the model. He has shown what one could do in but a little while. What an example for you young men who are pursuing the same career! You are witnesses of the regret which he carries with him; of the tears which he has caused to flow, and of his triumphs: take him for an example. Be as he was, active and laborious, patient and zealous. Time adds nothing to glory, and with genius and work, thirty years of life suffice to render one's name immortal."

The annual report of the hospitals and charities of Ontario has been laid on the table of the Legislature. Inspector Chamberlain says that some of the hospitals do not give proper attention to the poor patients. The boards of management devote more attention to the care of private patients who pay for their accommodation, the tendency being towards an extravagant expenditure in providing rooms and fittings which might be avoided.

Of the total number of hospitals in the province, there are two which are wholly under municipal management, the City Hospital, Hamilton, and the General Hospital, London, and they have not been so progressive as others that are entirely removed from civic control. One reason for this is that the citizens do not respond readily to appeals made for the support of their hospitals. One new county house of refuge has been completed during the year, in the county of Grey; several more are in course of construction.

The number of patients in the hospitals on the 1st of October, 1902, was 2,410; number admitted during the year ending September 30th, 1903, 32,368; and the total number under treatment during the year, 35,912. The number of deaths during the year was 1,997, and the total number of days stay of patients in the hospitals was 883,200. The provincial grant to hospitals is \$110,000; total amount received from all other sources, \$152,597; average cost of each patient per day, 89 cents; percentage of provincial grant to expenditure, 14 per cent.

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

JAMES STEWART,
A. D. BLACKADER,
G. GORDON CAMPBELL,
FRANK BULLER,
H. A. LAFLEUR,

GEO. E. ARMSTRONG
J. GEORGE ADAMI,
WILLIAM GARDNER
F. G. FINLEY,
F. J. SHEPHERD,

ANDREW MACPHAIL. MANAGING EDITOR.

WITH THE COLLABORATION OF

EDWARD ARCHIBALD,
W. L. BARLOW,
H. S. BIRKETT,
T. J. W. BURGESS,
W. G. M. BYERS,
KENNETH CAMERON
J. C. CAMERON
W. W. CHIPMAN,

J. M. ELDER,
D. J. EVANS,
J. J. GARDNER,
A. E. GARROW,
W. F. HAMILTON,
J. ALEX. HUTCHISON,
F. A. L. LOCKHART.

C. F. MARTIN,
JOHN McCRAE,
A. G. NICHOLLS,
E. J. SEMPLE,
J. W. STIRLING,
C. W. WILSON,
C. H. BROWN

Remittances, advertisements or business communications are to be addressed to the Montreal Medical Journal Co., Box 273; all others to the Managing Editor, 216 Peel Street, Montreal.

VOL. XXXIII.

MAY, 1904.

No. 5.

PATHOLOGISTS AND BACTERIOLOGISTS.

At the annual meeting of the Association of American Pathologists and Bacteriologists held in New York upon April 1st and 2nd, there were six contributions from Montreal. Dr. Adami and Dr. J. A. Chopin described a method which they had employed in connexion with the recent epidemic of typhoid fever in the suburbs of Montreal. It is well known that in waters suspected of being contaminated with typhoid discharges, the typhoid bacilli may be few and far between. It is necessary therefore to use as large quantities as possible for purposes of isolating the organism in question. Where tap water is used, the best results are obtained by filtering a large quantity through a coarse porcelain filter and employing the residue for methods of differential culture. Where water has to be obtained from an open stream, this method is not possible. For such purposes, they employed the largest vessel conveniently sterilized, namely, Winchester quarts holding somewhat over two litres,

and filling these with the suspected water, removed them to the laboratory, and there added from ten to twenty per cent of glucose broth, It is known that typhoid bacilli grow in the presence of very small quantities of organic matter and upon testing they found that, even with broth so dilute as this, there was active growth of typhoid and colon bacilli when the Winchester quarts were incubated for twenty-four hours. At the end of twenty-four hours, employing long glass tubes closed at one end, and filling these with ten cubic centimeters of the incubated water, they added various dilutions of typhoid serum and allowed to stand for three to five hours until the agglutinated bacilli had all sunk to the bottom; then, breaking off the end of the tube they decanted off the supernatant fluid, washed the precipitate with sterilized water, and made cultures upon special media so as to differentiate the typhoid from other colonies. Experimentally they were easily able to isolate the typhoid bacillus by this means. In the suspected water, however, they found no typhoid bacilli but a form which was agglutinated by the serum of typhoid patients and in other features closely resembled that bacillus though fuller study showed that it was a distinct form.

Dr. C. F. Martin demonstrated a series of specimens, more particularly a case of sarcoma of the stomach with secondary growths along the course of the small intestines.

Dr. A. G. Nicholls contributed a paper on A simple Method of Demonstrating the Existence of Microorganisms in the Mesenteries of Rabbits and other Animals. If, as many observers including Adami, himself and Ford have pointed out, bacteria are taken up from the intestines and are to be found undergoing destruction in the liver, kidneys, and other organs of the healthy animal, there should be some evidence of this passage in the mesentery. In determining if this were so, Dr. Nicholls selected the rabbit as having naturally a very delicate mesentery and, under the greatest care to prevent contamination, removed the covering endothelium in situ, hardened and stained in carbol-thionin and under strict aseptic precautions. In cutting out and mounting such preparations he discovered here and there little deeply staining bodies more particularly in the neighbourhood of certain cells and along certain vascular tracts in the mesentery. Here and there a well stained and definite bacillus could be made out. In general these bodies are smaller than ordinary bacteria and of a diplococoid form. He made control observations with tissues containing various forms of pigment and satisfied himself that the reactions of these other bodies were different from those of the bodies here described. The various transitional forms which he had been able to observe convinced him that he was dealing with bacteria, presumably

taken up by leucocytes from the intestinal contents and undergoing destruction along the course of the vessels and spaces of the mesentery.

Dr. Adami read for Dr. G. A. Charlton a continuation of his studies upon Subinfection by the Colon Bacillus contributed to a previous meeting of the Association. In that previous communication Dr. Charlton had shown that repeated injection into the rabbit of small doses of a living culture of the colon bacillus of low virulence obtained from the intestines of the rabbit, led to a progressive anæmia in which, when the red corpuscles had sunk to below three millions, there appeared poikilocytosis and nucleated red corpuscles. This differed from pernicious anæmia in the absence of marked changes in the bone marrow, in the definite increase of the iron in the liver and in the relatively greater reduction of hæmoglobin than of red corpuscles. Nevertheless, as sometimes occurs in pernicious anæmia, there developed in several of the animals nervous symptoms of progressive, ascending type. It is with these nervous symptoms that Dr. Charlton dealt. At first there was a certain grade of spastic paralysis of the hind limbs with increased reflexes. As the muscles emaciated the spasticity disappeared along with the reflexes, and the higher segments of the body became involved until, just before death, there seemed to be impairment of the bulbar centres. Examining the cords of these animals he found diffuse degeneration confined to the lateral and posterior tracts, with some evidences of degeneration of certain of the anterior horn cells, more rarely of cells of the posterior horn with pigmentation of the same and eccentric position of the nuclei. The fact that very similar degenerations are found in advanced cases of pernicious anæmia again appears to indicate that though possibly this is brought about by other organisms, this disease is of the nature of a subinfection, that is to say a condition produced by the passage into the system of increasing numbers of bacteria from the intestinal tract, of bacteria which do not multiply in the tissues as in frank infections, but undergo destruction, there being liberated into the tissues during this process toxic substances which slowly produce lesions.

Dr. O. Klotz gave a full study of the organism isolated from water by Drs. Adami and Chopin by the method above referred to, describing its various properties. While in size and form it resembled the typhoid bacillus, it was not so motile, had fewer flagella, and fermented various sugars with the production of gas. It had also a visible growth upon potato. Employing strong typhoid serum or the serum of animals immunized against the typhoid bacillus, it was not precipitated by such high dilutions as was the typhoid bacillus. It differed also in its growth upon neutral media and upon Elsner's

medium and eventually upon Hiss plates. Human typhoid serum which agglutinated the typhoid bacillus at the end of three hours at a dilution of 1 in 6,200, only gave complete agglutination of the organism in question with a dilution of 1 in 1,550 and a doubtful reaction of 1 in 3,100. Or, using rabbit serum, typhoid bacillus reacted in 1 in 1,240. This organism only reacted at 1 in 930. Yet these figures indicate that it is most sensitive to typhoid serum. Immunizing rabbits against this organism, there was a similar mutual action though here the organism in question was more rapidly agglutinated than was the typhoid bacillus. Comparison was made with a series of organisms isolated by Carl Sternberg in 1900 at Vienna, and the close relationship of this organism, to which the name bacillus perturbans was given, was pointed out.

A second paper by Dr. Klotz described an epizootic that had recently affected the rabbits and rats in the animal house at McGill. The disease in question was somewhat chronic, leading to progressive emaciation with a remarkable falling out of the coarser hairs and, in severer cases, of the finer hair also, giving the animals a curious ragged appearance. The post mortem findings in these animals were remarkably negative save that, in a certain number, there was a slight cirrhosis of the liver. In smears from the heart blood a diplococcus was seen, but cultures could rarely be obtained from the blood. Using special precautions, he obtained from the spleens and livers of the majority of the animals, a micrococcus apparently not hitherto recorded. The characters of this micrococcus were described, the most marked feature being the motility, due to the presence of fine terminal flagella. He was able to induce the disease with pure cultures of this organism in rabbits and guinea pigs and to reobtain the micrococcus from their organs. To it he gave the name of micrococcus flagellatus.

THE VOICE OF AUTHORITY.

“What the *Lancet* says,” is the last word upon any subject pertaining to medicine, whether it be the virtues of an automobile or the purity of cigarettes. It is quite true that the oracle is often misquoted, and the general statement that tobacco is a salutary herb, may be limited by energetic advertisers to apply alone to their particular brand.

There is an excellent diluent known as Apollinaris water, and people should drink it more freely than they do. This is our own opinion; it is the opinion of the bottlers, and it is in accord with the decree of the authority referred to. It is a pleasing sight, those who minister to the public sitting together in counsel and privy to each other's plans, editors of medical journals with those who advertise their health-giving wares in their columns.

For many years past there has been a suspicion, sedulously fostered by evil men, that this boon to the abstemious is habitually manufactured in London and New York, instead of being drawn without mediation from the great bosom of mother earth.

To set at rest these "sinister suggestions," the *Lancet* dispatched one of its special commissioners to the spring, where the company owning the property "afforded every facility in order that the inquiry might be made as complete as possible." The results of this elaborate enquiry have reached us from various quarters, from the editorial offices, from the agents for the company, and even from subscribers who seem resolute that the truth shall be made to prevail. The report is contained in the issue of January 30th, and follows an admirable account of the Osborne House Convalescent Home for Officers of the Navy and the Army. It is done in the highest style of the art of pseudo-scientific writing, and the author need never lack employment. It begins with the suggestion that many thermal waters are radio-active; it makes mention of the legal annoyance to which the company has been put by rival proprietors, it describes the site of the famous spring in the valley of the Ahr, "in the midst of vines." Then comes an account of the output of the company, 30 million bottles per annum, with the comforting assurance that in spite of the enormous drain the spring shows no signs of being exhausted. The process of bottling is described, how a portion of the iron is removed by oxidation, how a film of carbonate of lime forms upon the surface; how, finally, salt is added "to slightly augment the amount already normally present." The analyses "are very full and are in substantial agreement with those given at various times by the late Professor Virchow, Professor Bischof, Professor Liebreich, Professor Mohr, Professor Hofmann, Professor Kekulé, Professor William Odling, and the late Sir Edward Frankland," names so eminent that one would think this latest enquiry was a work of supererogation.

With true scientific candour the Commissioner does not categorically affirm that all the water, which is sold, issues forth from the spring but the inference is obvious. Lastly, there is not the slightest evidence to the ordinary reader that this exhaustive and expensive inquiry was undertaken for any other reason than the propagation of the truth.

THE MCGILL UNION.

The McGill Union has at length taken definite form. Reports, elaborate and well considered, have been handed in by the building committee, and by the committees on organization and subscriptions. They have been collated and amended by the full executive committee,

and the results will be communicated at once to the whole university body, graduate and undergraduate. By the timely assistance, which the committee has received, the work of building can be proceeded with at once, and when the endowment and organization is completed, the Union will be ready to be handed over to the undergraduates for their enjoyment.

The present arrangements are that the building will be erected on Sherbrooke Street, at the corner of Victoria; it will be three stories in height, and will have for principal feature a living room, so fine in proportion, decoration and furnishings as to be of educational value, in addition to ministering to the material comfort of the students. There will be reading rooms and writing rooms, a retired place for the class trophies and club rooms for societies, where meetings may be held and the records kept. These rooms will be arranged so that they can be thrown together for social purposes. The billiard room will be arranged for at least three tables, and the kitchen will be elaborate enough in its appointments to permit of banquets and suppers being prepared, should occasion arise. It is not proposed at present to serve regular meals to students; there will be, however, facilities for serving a light luncheon and breakfast and dinner by the card. In addition to all this, there will be a music room with sound proof walls editorial rooms for the college papers, accommodation for bicycles and photographers, and a small space reserved for graduates to meet together. In anticipation of the erection of a gymnasium—not so unlikely an event as might appear—nothing will be provided for athletic exercises, beyond a fencing and boxing room with one or two showers and baths. There is a strong feeling that if squash racket courts could be provided, they would be of inestimable value to instructors as well as students.

The committee are firmly seized by the idea, that, if the Union is to be the meeting place of all McGill interests, every graduate must come in. To that end they are issuing to the graduates a full outline of the plans and aims of the Union, and appealing to them to manifest their loyalty to the University. This is the first occasion upon which they have had the opportunity of acting in their corporate capacity, and the Committee has reason to feel assured of prompt response to their appeal.

ADDITIONS TO THE MUSEUM.

The Museum of McGill Medical College has received a most valuable addition in the gift by Dr. Duncan McEachran of the important anatomical and pathological collections made by him in the course of

the last thirty years in Comparative Medicine, in short, of the entire museum of the late Faculty of Comparative Medicine, including an interesting series of specimens presented to Dr. McEachran by the late Dr. W. G. Gadsden, of Philadelphia. Apart from the extensive series of skeletons, models and other preparations illustrating the normal anatomy of the domestic animals, the collection is more particularly rich in examples of fractures and diseases of bone of the horse and cow. There are, for example, most interesting series of specimens illustrating the development of such conditions as spavin, splint, and ring-bone; another series illustrating acute laminitis and malformations of the horse's foot; a very full series of specimens of the dentition, normal and pathological, of the horse; another valuable series is that of intestinal secretions and hair balls from various animals. The museum also becomes the richer by a collection of the more common parasites of the domestic animals and additions to its collection of monstrosities. It is difficult to estimate the value of this gift; equally difficult, with the rapid growth of the museum under the curatorship of Dr. Maude Abbott, to know how to suitably house these and other recent additions.

At the same time, Dr. McEachran and the members of the late Faculty of Comparative Medicine of McGill have deposited in the library of the College, the libraries of the late Veterinary Medical Association and Society for study of comparative psychology, which were associated with the Faculty of Comparative Medicine. These collections amount to some hundreds of volumes and materially strengthen departments of the library previously, save for the Gadsden collection, somewhat deficient. The collection comprises the leading works upon Comparative Medicine and general psychology and contains a valuable series of journals. To this collection Dr. McEachran has added a series of old seventeenth and eighteenth century works upon Veterinary Medicine.

THE STATUS OF THE STUDENT.

The term *Alma Mater* is the expression of a sentiment of affection, rather than the statement of a legal fact. Events that have happened in the Faculty of Science promise to lead to an actual determination of the status of the student, unless good sense can be made to prevail. The University may stand to the student *in loco parentis*. A mother may gain in dignity by allowing her children to have recourse to the courts to obtain a definition of their mutual relation; or again, she may not, for the law is proverbially uncertain, and what she gains in dignity she will surely lose in affection.

Without undue pretense to wisdom, it may be affirmed that the University stands to the student in the relation of a mother, by virtue of a covenant of affection alone. In the law's eye, a University is merely a corporation created by the legislature, and entitled only to exercise those functions specifically assigned to it. It remains for the courts to say if these functions have been exceeded or if they have been properly exercised. Those, who contend that a Canadian University is armed with such authority as law and custom have conferred upon German and English institutions, are making their passion clearer than their argument, and it will not do to say that students, if they do not like that view of the case, may go elsewhere.

Even a mother may exercise only a discipline which is reasonable, and when that reasonableness is questioned, the rights and privileges of both parties should be considered impartially. It will not do either to allow the determination to be made exclusively by one side or by the other. The Faculty of Science and the students also would do well to remember: What I spent, I had; what I saved, I lost; what I gave, I have.

THE UNIVERSITY CONVOCATION.

The convocation in McGill University of the faculties of Arts, Law and Science, which was held on the 29th of April, differed little from former ones, though the number of graduates was larger and the proceedings rather more decorous than usual. Dr. Moyse for the faculty of Arts recounted the events of the past year with which all are familiar, the contest with the educational authorities of Ontario, the inadvisibility of recognizing extra-mural courses and the growing university spirit. Dr. Bovey's address was a relation of the widening influence of the Science faculty and Mr. Walton noted the steady growth of the faculty of Law. Professor Caldwell delivered the address to the graduates in what is described as highly academical language, though some may think it would have been none the less effective if it had been more simple and the terminology less abstract. Many of the words, if not the thoughts, were new to this community. The address by M. Jusseraud was "inspirational," to employ the academical language referred to, and his simple theme was very grateful, that the secret of happiness is to be found in kindness.

THE PRIVATE BILL AGAIN.

The Legislature of Quebec, with its old proclivity for tergiversation, is again at work undoing an established principle by a private bill. Last session a law was passed affirming in set terms that no person

would be allowed to practise medicine by grace of the legislature, unless the applicant had first received the sanction of the College of Physicians and Surgeons. Private Bill No. 159, introduced by Mr. Taschereau, is in direct contravention of that law, and aims to set it aside. The legislature is the ultimate lair of human wisdom, but probably no one will contend that unaided it can by any intuitive process arrive at a correct judgment upon the fitness of a candidate for the profession of medicine. This thing does not concern the English speaking portion of the profession vitally, nor the French either, though both are working in harmony for its defeat. It does concern the public vitally. They require to have some better proof of a practitioner's capacity than his ability to secure the passage of a private bill, but most of all, they would like to have some assurance of the stability of legislative enactments.

At the present writing the affair does not look very hopeful, as it has been further complicated by the interjection into the discussion of incomplete information and ill considered opinion. Members of the profession and the public alike can only hope that in the end good sense will be allowed to prevail.

THE REGISTRATION OF BIRTHS.

A by-law, with the usual penalties attached, has been passed by the City Council, under which physicians are ordered to report all births occurring in their practice. To enforce such a by-law is probably beyond the power of the civic authority or the provincial legislature either. A similar attempt was made in St. John, but the prosecution was withdrawn, on the grounds that the Acts under which it was brought were *ultra vires* of the provincial legislature, and that such a gratuitous duty could not be imposed upon a body of men without their consent. The principle of the measure is good and it will encounter no factious opposition from the members of the profession. In common with other good citizens we desire to make government easy and not to add to its natural difficulties, but we should like to see the measure placed upon tenable ground. We are continually pleading for co-operation between all the elements of the community, French and English, lay and professional, in all matters affecting the public welfare, and in the not unlikely event of this by-law being found unworkable we trust that the civic authorities will feel free to avail themselves of such corporate wisdom as is possessed by the Medico-Chirurgical Society and La Société Médicale, which are now working in close agreement.

The Faculty of Arts has set at rest the movement in favour of extra mural courses advocated on behalf of teachers, who wished to proceed

to the degree of Bachelor. The Faculty, instead, has recommended bursaries for those who intend qualifying themselves for the profession of teaching, and the way will be made easy for them during the four years of their course, without any sacrifice of scholarship. There is something to be said for extra mural teaching in the technical subjects dealt with by other faculties, but it would be a departure from good tradition for the Arts Faculty to become an examining body merely. It was a cherished belief of the late Dean that Science students were not University students at all. This was probably an extreme view, but it would be a strange anomaly if the academic spirit, whose seat of election was, in his judgment, in the Faculty of Arts, should be allowed to depart without the walls. This encouragement of teachers toward a higher scholarship shows that the Faculty is alive to its higher functions, the oversight of education throughout the whole country.

The grievous disaster of fire, which befell the income of the Johns-Hopkins Medical School, has been quickly retrieved through the munificence of Mr. Rockefeller. The statement is made in the newspapers, and it is not thereby necessarily false, that the donor was incited to this splendid act of liberality by having read Dr. Osler's Practice of Medicine. This work has many excellencies, but virtue of this kind, we venture to think, was unsuspected, even by the author himself. If the story be true, it is probably the only case on record in which the reading of a medical book by a layman has been productive of good. For the information of other rich men, if they should be willing to draw information from so lowly a source, we hasten to add, that not every graduate is in the habit of producing similar works. Yet, if one such book should arise out of this endowment, the money will not have been misapplied.

The two monographs on Uric Acid, which Dr. Halsey reviews for us in this number of the JOURNAL, we regard as of very great value. They differ from many other monographs on the same subject in that the author has held no brief for any particular view or theory. He has striven, and we think successfully, to examine in the extensive literature extant the results which have been obtained from investigation and the theories which have been advanced. He has separated from the enormous amount of material, that which has a firm basis on fact, and shows well many errors in methods of investigation, the fallacies in reasoning, and the non-agreement between theories and facts. Dr. Wiener, the author, is especially well qualified to undertake this difficult task, as he has carried out a number of important in-

vestigations upon uric acid and has attacked the subject from both the clinical and the laboratory side.

The Association of French-speaking Physicians of North America have issued a most cordial invitation to the profession at large, and officially to sister societies, to share in the deliberations of the Second Congress to be held at Laval on the 28th of June. Nothing but good can be accomplished by the fullest acceptance of this privilege.

THE GOOD PHYSICIAN.

The lengthening of the session from six to nine months postpones the valedictory address well into midsummer, to a time when great truths do not find so ready an entrance into the graduate mind, as in the customary month of May. For three and thirty years, the Spring number of this Journal has been enriched by the wisdom of a valedictory address, and it does not seem right that this one should issue forth wanting in that particular. We shall therefore pretend to supply from another source something that will take its place, setting up, as it were, a tulchan valedictory.

Last year, Dr. Buller lamented the paucity of themes, which were open to one, about to indulge in that form of revelation. There is, in truth, but one theme fitting for the occasion, namely, the personal responsibility of the entrants into the profession towards themselves, towards each other and towards those to whom they are about to minister. The thing is a rite, a ceremony performed in an established or prescribed manner. It has a ritual of its own, which should be conducted within the University walls, instead of in some chance meeting place, and it should be done with the full ceremonial of academic pomp and dignity.

There need be no hesitation on the part of a valedictorian in choosing *The Good Physician* for his theme. It has the sanction of custom. It has been done before, and by none better than by Thomas Fuller, "whose wit, alike in quantity, quality and perpetuity, surpassing that of the wittiest in a witty age, robbed him of the praise due to him for an equal superiority in sound, shrewd good sense and freedom of intellect." But that is long ago, near three hundred years; some may have forgotten his counsel, and that is the present excuse for recalling the words of the eminent divine to the minds of valedictorians, who may be in search of inspiration.

The Holy State and the Profane State was published in 1642, and contains an estimation of the Good Physician in a number of maxims.

Maxim I.—*He trusteth not the single witness of the water, if better*

testimony may be had.—"For reasons drawn from the urine alone are as brittle as the urinal. Sometimes the water runneth in such post-haste through the sick man's body, it can give no account of anything memorable in the passage, though the most judicious eye examine it. Yea, the sick man may be in the state of death, and yet life appear in his state."

The painstaking gentlemen who published the account of a case of Eclampsia in the last number of this JOURNAL will likely dissent from this judgment, but the physicians of those days had to depend upon the eye alone, without the aid of apparatus for the estimation of urea. Their knowledge of the gross appearance of the excretions was profound, and one eminent diagnostician records the inference to be drawn when the excrement is "elaborately curled."

Maxim II.—*Coming to his patient, he persuades him to put his trust in God, the Fountain of Health.* "The neglect hereof hath caused the bad success of the best physicians: for, God will manifest, that though skill come *mediately* from Him to be gotten by man's pains, success comes from Him *immediately* to be disposed at his pleasure."

Upon this maxim one might make an excursion into exegetics, and take for a text the verses which describe the case of that Judacan king, "of perfect heart," yet "diseased in his feet." This unhappy man "sought not to the Lord, but to the physicians," and the consequences are stated in the ensuing words with rare precision: "And Asa slept with his fathers." If one were minded to enter into the matter of faith healing, much might be said, but what would be said might not be true. At least that is a fair inference from much of the writing that has been done upon the subject.

Maxim III.—*He handsels not his new experiments upon the bodies of his patients.*—"Letting loose mad receipts into the sick man's body, to try how well nature in him will fight against them, whilst himself stands by and sees the battle; except it be in desperate cases, when death must be expelled by death."

There are those who would disagree with this wise counsel. We are content to follow it, and let loose our mad receipts upon bodies lower than our own, and, standing by, watch the battle between nature and the drug.

Maxim IV.—*To poor people he prescribes cheap but wholesome medicines.*—"Not removing the consumption out of their bodies into their purses; nor sending them to the East Indies for drugs when they can reach better out of their gardens."

The treasurer of any hospital will testify, that, whether the medi-

cines now administered to the poor are wholesome or not, certainly they are not cheap. Last year the Montreal General Hospital spent nearly twelve thousand dollars in drugs and surgical appliances.

Maxim V.—*Lest his apothecary should oversee, he oversees his apothecary.*—"For, though many of that profession be both able and honest, yet some, out of ignorance or haste, may mistake: witness one of Blois, who, being to serve a doctor's bill, instead of *optimi* (short written) read *opii*, and had sent the patient asleep to his grave, if the doctor's watchfulness had not prevented him. Worse are those who make wilful errors, giving one thing for another. A prodigal who has spent his estate, was pleased to jeer himself, boasting that he had cozened those who had bought his means. 'They gave me,' said he, 'good *new* money, and I sold them my great-great-grandfather's *old* land.' But this cozenage is too too true in many apothecaries, selling to sick folk for *new* money *antiquated* drugs, and making dying men's physic of dead ingredients."

Prescribers of drugs are not infallible in these days either and mistakes in prescriptions are yet common enough, if we believe what we hear from the law courts. Nor have we yet eradicated the vice of substitution. The manufacturer of a proprietary preparation could not state the case against the practice with more vigour than does the worthy divine. The chemist of the Inland Revenue Department told us, not long ago, something about "antiquated drugs." Out of 15 samples of tincture of opium examined only four were genuine; half the samples of citrate of iron and quinine were adulterated. Of 23 samples of tincture of gentian, nine were adulterated; of 11 samples of tincture of cardamons five were adulterated; of camphor two out of six; of myrrh five out of 17; of rhubarb 14 out of 21; of calumba one-third; of ginger four out of seven; of squills four out of six; of jalap one-fourth the samples; of buchu every one. Carrying the research further, into spirits of nitrous ether, and dilute hydrocyanic acid, the official analysts found the same results. Only one sample out of nine of the former was found correct; some had no nitrous ether and several others were practically useless.

Maxim VI.—*He brings not news, with a false spy, that the coast is clear, till death surprises the sick man.*—"I know, physicians love to make the best of their patient's estate. First, it is improper that *adjutores vilae* should be *nuncii mortis*. Secondly, none, with their goodwill, will tell bad news. Thirdly, their fee may be the worse for it. Fourthly, it is a confessing that their art is conquered. Fifthly, it will poison their patient's heart with grief, and make it break before the time. However, they may so order it, that the party may be informed

of his dangerous condition, that he be not outed out of this world before he be provided for another.

Maxim VII.—*When he can keep life no longer in, he makes a fair and easy passage for it to go out.*—He giveth his attendance for the facilitating and assuaging of the pains and agonies of death. Yet, generally, it is death to a physician to be with a dying man.

Maxim VIII.—*Unworthy pretenders to physic are rather foils than stains to the profession.*—Such a one was that counterfeit who called himself “the Barron of Blackamore,” and feigned he was sent from the Emperor to our young King Henry VI., to be his principal physician. But, his forgery being discovered, he was apprehended, and executed in the Tower of London, *anno* 1426, and such the world daily swarms with. Well did the poets feign Aesculapius and Circe brother and sister, and both children of the sun; for, in all times, (in the opinion of the multitude), witches, old women, and impostors have had a competition with physicians. And commonly the most ignorant are the most confident in their undertakings, and will not stick to tell you what disease the gall of a dove is good to cure. He took himself to be no mean doctor, who, being guilty of no Greek, and being demanded why it was called a *hectic* fever; “Because,” saith he, “of an *hecking* cough which ever attended that disease.”

This maxim requires no gloss, yet a Valedictorian would do well to elaborate the idea, that unworthy pretenders to physic are but foils to set off the Good Physician, that the qualities of acuteness in observation, reliance upon that power which is not ourselves, conservatism in the employment of remedies, consideration for the poor, skilfulness and honesty, and carefulness in the details of treatment, a correctness of demeanour towards the great mystery of death, are yet as essential to the Good Physician as they were in the days of the worthy Fuller.

Reviews and Notices of Books.

A Practical Treatise on Nervous Diseases. By F. Savary Pearce, M.D., Professor of Nervous and Mental Diseases, Medico-Chirurgical College of Philadelphia; 461 pages, with coloured frontispiece, and ninety-one illustrations in the text. D. Appleton & Company, New York. Morang & Co., Toronto, 1904.

This book is admirably made, as all of Appleton's books are; the illustration is sumptuous, though many of the plates are familiar to readers of Butler's excellent book, published by the same firm. The first section is devoted to the anatomy of the nerve structures, the second to physiology, the third to chemistry, and then follows a consideration of

general pathology, sclerosis degenerations, gliosis and inflammations. General symptoms, methods of examination and nomenclature have a chapter of their own, and it is succeeded by one upon general therapeutics, with mention of the various remedial measures. Symptomatic disorders are next considered, including vertigo, insomnia, the neuralgias and headache. The disorders of the various portions of the system are then taken up, and the book concludes with functional diseases, vasomotor and trophic disorders, toxæmias and general paresis. An appendix completes the volume. From the foregoing it will appear that the arrangement is orderly, and on examination, each section will be found well filled yet not overloaded. Dr. Pearce does not tell us all he knows about the subject, but he tells enough to make the book entirely adequate for those for whom it is intended, the medical student and the general practitioner.

Infection and Immunity, with special reference to the prevention of Infectious Diseases. By George M. Sternberg, M.D., LL.D. G. P. Putnam's Sons, New York and London, 1903.

This volume is the twelfth in the Science Series published by the Messrs. Putnam, and twelve more are in course of preparation. The series covers the whole range of science from the study of man and his environment to the bacteria. The name of the author, George M. Sternberg, recalls the remarkable career of a medical officer at an obscure army post, who worked amidst many discouragements and finally became surgeon-general of the United States army. What Pasteur was to France Dr. Sternberg was in the United States. The scope and value of his work is not yet fully apprehended even by bacteriologists. Those who require any high revelation upon the subject of Immunity must go elsewhere for a stimulation of their curiosity; this book contains only so much as is proved, and is therefore the more valuable for the readers for whom it is intended. Speaking of this volume alone, it is a remarkably successful attempt to bring to the people a sound knowledge of the dangers to which they are exposed, and of the means by which those dangers may be avoided.

Disease of the Eye. By L. Webster Fox, A.M., M.D., Professor of Ophthalmology, Medico-Chirurgical College, of Philadelphia; Five coloured plates and 296 illustrations; 584 pages. D. Appleton & Co., New York and London; Geo. N. Morang & Co., Toronto.

This is another of the numerous recent special treatises on Ophthalmology, most of which present no claims to originality and no apparent reason for their production other than those which are personal to the writers. The handsome volume now under consideration is

copiously illustrated, provided with index, glossary and ophthalmic formulæ to suit alike the casual reader or diligent student. In arrangement and general presentation of the subject the author has certainly produced a very readable and attractive work in which he has incorporated no fewer than fourteen original devices of his own in the way of instruments, methods of operation and of treatment. This is a feature which cannot fail to lend a special value to the work and establish its position as one worthy of a place in every special library of ophthalmic literature.

The International Medical Annual: A Year Book of Treatment and Practitioner's Index. Twenty-second Year. New York; E. B. Treat & Company, 1904.

This is the twenty-second year of publication of this excellent index to the literature of the past year. A departure in the present volume is the introduction of stereoscopic views. Their examination with the instrument provided, facilitates the study of structures which by other methods are difficult of illustration. The section devoted to diseases of the ear is admirably illustrated by a set of twelve stereograms. There is also a series of plates representing the distribution and nature of the eruptions in infectious diseases such as smallpox, scarlet fever, measles, typhoid and typhus. The sections on serum therapy, radio-activity, and electro-therapeutics have required a great deal of careful review. The examination of the literature has been very exhaustive, and nothing of serious interest seems to have escaped notice. The convenient size and dictionary arrangement of this volume, supplemented by a full index, make it a most valuable year book.

General Pathology. By Dr. Ernst Ziegler, translated from the Tenth Revised German Edition (Gustav Fischer, Jena, 1901). Edited by Alfred Scott Warthin, Ph.D., M.D. William Wood & Co., New York; Chandler and Massey, Toronto, 1903.

A book which has reached the tenth edition, which is employed wherever medicine is studied or taught, requires no further mention, beyond the fact that a new issue has appeared. Ziegler's Pathology is more than a text-book; it is a complete record of the science of the causes, nature and course of the processes of disease. If one were to enumerate the notable features of the work, it would be merely a rewriting of what has been said on many previous occasions in these pages.

Anatomy Applied to Medicine and Surgery. By D. E. Mundell, F.A., M.D., Professor of Applied Anatomy, Queen's College, Kingston.

We welcome any signs of activity in Canadian colleges, and make

respectful mention of this book by Dr. Mundell. In a first edition of a publication upon so technical a subject errors are bound to occur, but a list of thirty-three errata in the outset is apt to create an unfavourable impression. Even the title page is marred by an error, which is hard to excuse. The book deserves better things at the hands of the printer and paper maker, and had it appeared in a better dress, we venture to say it would take its place amongst the standards of Applied Anatomy. For those who are not deterred by superficial faults, the book will afford pleasure and profit; they will find in it a good style, breadth of view and an easy handling of material. The description is powerfully done, and the observations are made with acuteness and judgment.

Diseases of the Intestines, a Text-Book by Max Einhorn, M.D., Professor of Medicine at the New York Post-Graduate School and Hospital: Second Revised Edition, New York, William Wood & Co.; Toronto, Chandler, Massey & Co. 1904.

The first edition of this book was published in 1900, and was quickly exhausted; the present edition is issued to supply its place, rather than to record any great advance in this branch of medicine. The book contains a true record of the present state of knowledge and also of sentiment in regard to Diseases of the Intestines. The references to the literature are very copious, and opinions are freely cited; in the first two hundred pages there are 184 references, 126 being to foreign books or publications. The work is well balanced, and treatment receives a full share of consideration.

A Text-Book of the Practice of Medicine, designed for the use of students. By James Magoffin French, M.D. Illustrated by ten full page plates and fifty wood engravings. New York, William Wood & Co.; Toronto, Chandler and Massey, 1903.

This book is an important addition to the works now extant upon the Practice of Medicine. It is more formal and systematic than some other recent presentations of the subject; it opens with a general consideration of the principles of medicine and ends with an account of the clinical methods of examination. The arrangement is orderly; the work is well balanced, and the various aspects of disease are presented with due regard to their importance. We venture to predict that this book will take its place among the standards in medicine.

A Manual of General Pathology. By Dr. Sidney Martin. Svo, 502 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia. Chandler, Massey & Co., Toronto.

Medical News.

CANADIAN MEDICAL ASSOCIATION.

Good progress is being made in Vancouver towards the thirty-seventh annual meeting of the Canadian Medical Association on the 23rd, 24th, 25th and 26th of August. This is the first occasion on which the Association has met west of Winnipeg. The principal guest will be Mr. Mayo Robson, and the names of the other visitors will be announced later. A banquet will be held in Vancouver on the evening of the second day. The next day the delegates and their friends will take the steamer Princess Victoria for Victoria. A run will be made to William Head quarantine station, and the return to Victoria will be made by way of Esquimalt, to view the naval arrangements and the fortifications. Upon arriving in Vancouver, a reception will be arranged for at the legislative buildings. The following day will be given up to visiting the many points of interest about the city, including the sea drives, and in the afternoon Esquimalt and the Naval hospital will be visited. A trip up the Arm by moonlight is also contemplated on the second day and a band concert will be given on that evening.

Although the official circular from the railway companies has not yet been received, it is expected that the date of sale of tickets will open on the 15th of August and following days; the time limit will be two months, and will not be extended beyond that. Tickets will be sold only to delegates and immediate members of their families, on presentation of certificate from the General Secretary, and those who have not already done so should file their names with that official at an early date. Under the arrangements made, tickets will be good going by Canadian Pacific direct, via Port Arthur or via Sault Ste. Marie, St. Paul, thence Soo-Pacific route, Great Northern or Northern Pacific; or via Detroit, Chicago, St. Paul, thence Soo-Pacific route, Great Northern and Northern Pacific, returning same route or any other of the above routes. Returning, diversion can be made via St. Paul to St. Louis at an additional cost of \$10.00, and from St. Louis to Detroit, where travellers will rejoin either Canadian Pacific Railway, or Grand Trunk Railway to their homes according as tickets read. Should any wish on return journey to visit the Yellowstone Park they can do so on payment of the extra charge made for the trip through the Park from the junction with the Northern Pacific Railway. No other arrangements have been made so far, but the General Secretary is in communication with the Union Pacific to provide for return via California, Salt Lake City and Colorado. If any arrangements are made for special train, these will be announced in due and proper

time. The following gives an approximation of the rates from all points east of Port Arthur: Toronto, Brantford, Hamilton, Windsor, Chatham, London, Stratford Guelph, Orillia, \$62.40; Montreal, Ottawa, Brockville, \$68.00; St. John, N.B., \$76.50; Halifax, via I.C.R., \$81.00; Sydney, \$83.70. Winnipeg and points in Manitoba, \$45.00, but full arrangements for this have not as yet been fixed. One certificate only will be required to be presented by delegate for his own use and the immediate members of his family; and only to those who file their names with the General Secretary can be sent these certificates. The berth rate to Vancouver in each direction from Toronto and Montreal is \$17.00 and \$18.00 respectively. Those contemplating attending should send in their names without further delay to the General Secretary, Dr. George Elliott, 129 John Street, Toronto.

THE MCGILL JOURNAL CLUB.

The medical library of the University has earned for itself an enviable reputation among the libraries of the continent. Yet its list of standard journals is far from complete; and many a worker, seeking references, has been met by the bald statement: "not taken by the library." To meet this want is the object of the McGill Journal Club, lately established. The Club starts with a membership of about 60, including a majority of the teaching staff of the Medical Faculty. The subscription price is two dollars a year. The funds are to be devoted to securing standard journals in the various branches of medicine not already taken by the library or by the special laboratories.

At a meeting lately held, the following officers were elected: Honorary President, Dr. Roddick; President, Dr. Archibald; Vice-President, Dr. Gillies; Secretary, Dr. Nichols; Treasurer, Dr. Morrow. A committee of ten, each member representing a special branch of medicine, has also been elected; and the duty of each is to consult all the members interested in the particular branch he represents as to the choice of the journals devoted to that branch. At a very small individual cost, the usefulness of the library can be largely increased.

The journals are to be kept upon special shelves in the McGill Medical Library, and may be taken home by members upon the same general conditions as prevail for the regular library periodicals.

Any duly qualified practitioner, resident in the city and district of Montreal, may become a member. The membership is not limited to the teaching staff, nor even to McGill graduates. The larger the membership, the more useful does the reference library become. And it is hoped that the evident value of the Club may induce a large number of the practitioners of the city, whether French or English, to join it.

MCGILL POST-GRADUATE COURSE.

The ninth post graduate course for general practitioners will be conducted by the Faculty of Medicine, McGill University, for four weeks beginning Monday, May 30th, and closing June 24th. The programme will comprise the following branches: Laboratory instruction, including microscopical methods; clinical microscopy; clinical chemistry and urinalysis; analysis of stomach contents, and clinical bacteriology.

Special demonstrations will be given as follows: Operative gynaecology, Dr. Gardner; operative midwifery, Dr. Cameron; sanitary topics, Dr. Starkey; clinical use of the Roentgen Rays, Dr. Girdwood; demonstrations on post-mortem specimens, Dr. McCrae; medical examination for life insurance, Dr. Wilkins.

Medical and surgical clinics will be held in medicine at the Montreal General Hospital by Drs. Blackader and Campbell; in surgery, by Drs. Shepherd, Elder and K. Cameron; at the Royal Victoria Hospital in medicine, by Drs. Martin and Hamilton; in surgery, by Drs. Bell, Garrow, Archibald and Keenan.

Clinics in special departments will be given as follows: In ophthalmology, including demonstrations in the use of the ophthalmoscope, Drs. Buller, Stirling and Byers; dermatology, Dr. G. G. Campbell; genito-urinary surgery, Drs. Bell and Springle; orthopaedics Dr. C. W. Wilson; laryngology, Drs. Birkett and H. D. Hamilton; gynaecology, Drs. Gardner, Lockhart and J. D. Cameron; obstetrics, Drs. J. C. Cameron and Evans; diseases of children, Drs. Blackader and G. G. Campbell.

WESTERN GENERAL HOSPITAL.

The quarterly meeting of the Western Hospital was held on April 18th. During the last quarter 133 patients were admitted to the hospital; 93 were Protestants, 38 Roman Catholics, two Jews, 61 males, and 72 females. Of these 116 were residents of Montreal. On the 1st of January there were 34 patients in the wards, 128 have since been discharged, seven have died, and 29 are still inmates of the institution. The ambulance calls during the last quarter numbered 39.

The record for the outdoor department brings the total number of consultations to 1,783, which shows a decrease of 219 from the corresponding quarter of 1903. The consultations for the last quarter are distributed as follows: Medical, 534; surgical, 268; gynaecological, 317; eye and ear, 141; nose and throat, 256; skin, 56; genito-urinary, 211.

There were 50 patients admitted to the hospital during the month of March, 49 discharged and four died; 20 medical, 23 surgical and seven

gynaecological. In the Outdoor Department there were 646 consultations during the month; 211 medical; 69 surgical; 133 gynaecological; 63 eye and ear; 102 nose and throat; 20 skin and 48 genito-urinary.

JEFFREY HALE HOSPITAL.

By the terms of the will left by the late Mrs. J. F. Turnbull, of Quebec, the Jeffrey Hale Hospital receives the magnificent sum of \$500,000, on condition that an addition to the present building be erected, to be known as the Mackenzie Wing, in memory of the donor's father, the late James Mackenzie, of Quebec.

A nurses' home will also be erected, and the space now occupied by the nurses will be utilized to increase the accommodation for patients. The Home will fill a want that has been very much felt, both by giving room in the main building, and in providing for the nurses better quarters.

The Training School, opened in 1901, is now in a most satisfactory condition, and within the next few months the first graduates will be granted their diplomas. The number of applications for admission to the Training School during the past year has been larger than the hospital demanded, and the standard is being raised accordingly.

MONTREAL GENERAL HOSPITAL.

During the month of March there were 254 patients admitted to the wards of the Montreal General Hospital, and 250 were discharged. The deaths numbered 19. One hundred and one ambulance calls were responded to. The daily average sick for the month was 196. The greatest number in any one day was 208. There were 3,383 consultations in the outdoor department. The medical wards are at present being thoroughly cleaned and painted.

HOTEL DIEU.

During the month of March 218 indoor patients were admitted, 103 men and 115 women; 408 patients were treated in the various wards, 206 male and 202 female, and 192 were discharged, cured or improved. Twenty-one deaths were recorded; 17 among the female and four among the male patients; 76 major operations were performed. There were 368 treated in the general dispensary, and 176 in that of the eye, ear and nose.

ROYAL VICTORIA HOSPITAL.

Monthly report for March: Patients admitted, 284; discharged, 262; died, 17; ambulance calls, 74; medical, 93; surgical, 142; ophthalmolo-

gical, 25; gynæcological, 22; laryngological, 20. Outdoor department: Medical, 894; surgical, 487; ophthalmological, 319; gynæcological, 132; laryngological, 322; total, 2,154.

Dr. L. de L. Harwood will succeed the late Dr. Brennan as professor of gynæcology in Laval University, and will also be chief of the gynæcological department in the Notre Dame Hospital. Dr. Harwood has also been chosen president of the section of gynæcology of the Medical Congress of French-speaking Physicians of North America, which is to meet here in June. Dr. A. Ethier becomes Dr. Harwood's successor.

Dr. Hodgetts, the newly appointed chairman of the Ontario Board of Health, is marking his entry into office by insisting upon a better registration of cases of infectious disease. He finds that in 1902 there were returned to the department 1,542 cases of typhoid fever, while the hospital statistics show 2,067 cases, with 242 deaths. In 1903 a return from the 700 divisions showed 1,012 cases, while in the hospitals there were 1,918, with 398 deaths.

The report of the McGill Medical Library shows that during the quarter ending January 31st, the number of readers was 4,702, and the number of volumes taken out 1,721. In the previous quarter the number of readers was 3,950, and the number of volumes taken out was 1,217.

A by-law to provide for the raising of \$100,000, to be devoted towards the erection of a modern hospital building is to be submitted to the people of Vancouver. It is estimated that a three-story stone building of modern construction will cost \$200,000. Half of that sum is already in hand.

Dr. Ernest Wills, of Calgary, is building a sanitarium for consumptives, where patients suffering from the disease will have every facility for care and treatment. Dr. Wills is at present in Montreal in connexion with his work.

The fourth annual meeting of the Canadian Association for the prevention of consumption was held in Ottawa on the 20th of April. Dr. Ravenal, of the Henry Phipps Institute, Philadelphia, delivered an address upon Animal Tuberculosis in relation to human health.

The new Sanitarium for Consumptives, at Kentville, will be opened next month. It is one of several which the Government of Nova Scotia proposes to build.

Dr. Campbell, McGill, '02, has resigned from the position of House Surgeon in the Ottawa Isolation Hospital, and Dr. Sherriff, Queen's, '03, has been appointed in his stead.

Buckingham is to have a general hospital. The new building will be 80 by 40 feet, and four stories high, and will cost \$18,000. The institution will be in charge of the Grey Nuns.

The Nova Scotia branch of the British Medical Association completed the work of the season on the 13th of April. Dr. D. A. Campbell read a paper upon the Pioneers of Medicine in Nova Scotia.

Dr. Carter, coroner of Moosomin, died on the 16th of March, from pulmonary hæmorrhage. He is survived by a wife and four children.

C. W. Oliver, of Westville, Medicine, '07, died on the 21st April, as a result of otitis media with heart lesion. A funeral service was held in the chapel of the Royal Victoria Hospital, and the students and faculty attended in a body.

Dr. Herbert C. Featherston died at his father's house in Toronto on the 7th of April, of pleuro-pneumonia. Dr. Featherston graduated from McGill University in 1902; he subsequently went to Edinburgh, where he took the three qualifications of the Royal College of Surgeons, and in November last he returned home in a somewhat feeble state of health.

Society Proceedings.

OTTAWA MEDICO-CHIRURGICAL SOCIETY.

Eleventh Meeting, March 3rd, 1904.

DR. F. X. VALADE IN THE CHAIR.

The paper of the evening was read by Dr. J. FENTON ARGUE, the subject being Chlorosis. The paper dealt with the pathology, symptomatology and treatment of the condition.

Twelfth Meeting, March 24th, 1904.

(At the Water Street Hospital.)

DR. H. B. SMALL, PRESIDENT, IN THE CHAIR.

Dr. Chabot presented a case of excision of the hip joint for Hip-Joint Disease with abscess formation. The result was a useful movable joint, but with 2½ inches of shortening.

Dr. Chabot also showed a case of Cholelithiasis, in which he had

done a cholecystotomy; 149 gallstones were removed. The gall bladder was immediately closed, with drainage of the peritoneal cavity. The recovery was uninterrupted.

DR. R. S. MINNES showed the specimen of a lens removed for Cataract, in the centre of which was imbedded a piece of steel. The injury was received twenty years before operation.

Dr. Minnes also showed a case of Double Congenital Coloboma, with Detachment of the Retina. This had been improved by the injection of 10 per cent. salt solution into the vitreous chamber.

DR. C. P. DEWAR showed—I. A case of Movable Cartilage of the Knee Joint—post-operative with specimen. The injury was received three years ago.

II.—Case of Hysterical Aphasia. The aphasia developed after a few days of malaise, and was at first accompanied by athetosis. Recovery has been gradual.

III.—Specimen of Sarcom of Tibia, from a boy of nineteen. Six years ago he received a blow over the inner malleolus. Three years after, the swelling now present was first noticed, and growth since was gradual. The leg was amputated through the knee joint.

DR. THOS. GIBSON exhibited a case of Lupus Vulgaris of the Face, which had resisted treatment by X-rays, but was improving under application of pure carbolic acid followed by alcohol.

DR. W. J. BRADLEY read a short note on Accidents in the Administration of Chloroform, with especial reference to the presence and detection of certain impurities.

Thirteenth Meeting, March 31st, 1904.

DR. H. B. SMALL, PRESIDENT, IN THE CHAIR.

DR. F. X. VALADE read a short paper on Eclampsia and its Treatment.

The discussion was general; those taking part were Drs. Hanna, Robinson, Basken, Parent and Small.

SOCIÉTÉ MÉDICALE DE MONTREAL.

DR. VALIN, PRESIDENT, IN THE CHAIR.

Meeting of 22nd March, 1904.

The announcement of Dr. L. Coyteux Prevost's lecture, under the auspices of the Société Médicale de Montréal, brought a large gathering of the French speaking element of the medical profession of Montreal and the suburbs. The subject of the lecture, "Parmi nos tombes," was enigmatic, and the audience was taken by surprise, when Dr.

Prevost announced that instead of relating his successes, he had chosen to speak of the disasters he had met in his surgical career. He invited his hearers to follow him into his little cemetery, and detailed the clinical history and the operation which, perhaps, had hastened the end of the patients. This, he held, would prove more instructive and, perhaps, shield others from the same mishaps, as the causes of death in these unfortunate cases were plainly given.

DR. LAMARCHE in discussion, said, that the lecturer had shown them in the course of a direful promenade "among the graves" the drawbacks of abdominal surgery, and the marvelous progress accomplished by modern methods. It was evident to him that obstetrics had not kept apace with the advance of the other branches of medicine, and that the *accoucheur* was the most active provider of the gynaecologist. "Bad midwifery makes rich gynaecology," he said. Many were the obstacles which confronted the obstetrician, both on the part of the parturient and her surroundings, and on the part of the attendants in regard to the difficulty of application of aseptic and antiseptic principles.

The president thanked the lecturer and the meeting adjourned.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Thirteenth Meeting, April 15th, 1904.

H. S. BIRKETT, M.D., PRESIDENT, IN THE CHAIR.

DR. BIRKETT and DR. NICHOLLS read a paper upon a rare form of Otomycosis due to the *Aspergillus Glaucus*. Dr. Birkett gave the clinical report of the case and Dr. Nicholls illustrated the growth by diagrams on the blackboard. This paper appears at page 338 of this number.

In the discussion which followed, Dr. Archibald pointed out that moulds are not commonly troublesome, because they rarely grow at the temperature of the body, and he said that those which seem to be pathogenic for animals are apparently not so for man, and that those moulds which do grow at body temperature are apparently very rarely pathogenic. Dr. Birkett, in reply to a question by Dr. Elder, explained that the deafness produced was of the obstructive form. The growth seemed to limit itself to the skin of the auditory canal and though the drum membrane is covered with a very thin epidermal layer yet it did not seem to attack the drum membrane itself. He knew of a case in the literature, in which the mould had invaded the drum membrane and penetrated into the middle ear.

DR. J. M. ELDER reported a case of acute Intestinal Obstruction following Syphilitic Ulceration in the Ileum.

DR. ARMSTRONG discussed the case at length and said: In some respects this case is similar to two cases of ulcer, supposedly syphilitic, of the stomach, which I have noted. One was reported by Dr. Finnie of Baltimore, the other occurred in the practice of Dr. Lafleur. This latter case was that of a man who had all the symptoms of ulcer and gastric dilatation for some years; he had visited most of the surgeons in New York and Dr. Osler had reported that he had a large dilated stomach. He returned home in a very grave condition of emaciation and when I examined him, some time after Dr. Osler's examination, I found the stomach very much contracted, to nearly a third the normal size, and in the posterior wall a large ulcerated area, fully as large as the palm of the hand with thick, well defined sharp edges; the adhesions about the stomach were very strong and broad, so much that they gave rise at first to the impression that it was a carcinoma; they were not infiltrating adhesions but regular bands. After gastro-enterostomy and inunctions of iodides the man made recovery up to the point of weighing more than he ever did with no restrictions in diet. Dr. Lafleur reported the case at Washington before the Association of American Physicians and in the MONTREAL MEDICAL JOURNAL. It was regarded by Dr. Lafleur and Dr. Osler as probably of syphilitic origin; the case improved after the exhibition of the iodides. There is in Dr. Elder's case a great similarity, in that there was this contraction and narrowing with the formation of these strong bands of adhesions.

DR. HUTCHISON reported seven cases of fracture of the patella, and five of the cases were exhibited at the meeting. These patients had perfect use of the limb and it would be hard to tell which limb had been injured; in only one case was there any weakness noticeable and this was a case treated nine years ago by the posterior splint and strapping method.

DR. ARCHIBALD: Dr. Hutchison is to be congratulated upon such an excellent series of cases. It does not always happen that we get such good function, even with the later operation. Early movement strikes me as being of great benefit in these cases. It seems on the face of it a risky thing to subject a patient with a fracture within a week to movements which may disturb the fragments, but the advocates of this procedure show the best results. It does away with the atrophy of the quadriceps, which is so troublesome in cases treated in the old way. Another point of interest illustrated by non-operated cases is that they often seem to do well if the fragments are not very far apart, yet with the lapse of time this distance becomes very much

increased, as the fibrous union is very apt to be lengthened out by use, whereas firm bony union resists any such strain; one of the skiagrams illustrates this well, showing the separation much wider than when the first photograph was taken.

Dr. St. JACQUES: I am also in favour of the early movements and massage and in one of my cases I advised crutches after the fifth day. I also have had occasion to see cases treated by the old method, and in one case there remained about a half inch space between the two fragments, but the patient was lame and could only bend his knee a few inches. This has induced me to advise surgical interference. I have seen atrophy of the quadriceps after but two weeks immobilisation.

Dr. ARMSTRONG: I have always felt some diffidence in bringing such cases as these before students as such operations should only be done by experienced hands. I have never had any trouble with wiring patellæ, but I have seen stiff joints result with even amputation required, and death may follow the operation. It is a serious question whether one should be willing to run the great risk of infection of the knee joint for the sake of a better result which may be obtained if all goes well. Personally, I should want to know that I had a very good surgeon, that he was well equipped, that his assistants were capable and that he had a technique which he was using daily and was familiar with. The advantages and disadvantages of the case should be placed before the patient. With regard to the time for operating one does not always receive these cases early, but in cases where there is traumatism of the soft tissues one should wait until they are at their best resisting power. After an injury the circulation is interrupted and probably the lymphatics as well so it is better to wait till all temperature has subsided. A man should be able to do this operation absolutely without letting his fingers get into the wound. In general one should do this operation with rubber gloves, preferably new ones and nothing should enter that wound unless absolutely sterile. As to the stiffness afterwards that is very largely obviated by getting the patient up and walking about. The question as to the operation is still debatable, but I believe the technique is becoming more perfect every day and this is the proper operation provided the patient is in a suitable condition for it. I congratulate Dr. Hutchison on this remarkable series, and I think his results are such as one might well be proud of.

Dr. HUTCHISON: We all know that the getting of the patient on his feet and the walking about for the protection of the muscular tone of the quadriceps is the key to the situation, the bony repair goes on and

retains the suture material if it is properly applied. In regard to the question of operation I too have taught students the difficulty referred to by Dr. Armstrong, and I might say that in every one of the cases the whole condition has been placed before the patient. The tear of the aponeurosis has been the basis of my decision in operating, it was present in all my cases, and the inability of the quadriceps to lift the leg up proves that it is a distinct rupture of continuity between the thigh and the leg. With regard to the clot I concur in the belief that it could not be removed by aspiration until too late to be of service to the strength of the limb.

Fourteenth Meeting, April 15th, 1904.

H. S. BIRKETT, M.D., PRESIDENT, IN THE CHAIR.

DR. A. PRIMROSE, of Toronto, read a paper upon Some Observations on the Surgical Treatment of Chronic and Acute Nephritis. The paper appears at page 317 of the May issue of this JOURNAL.

In the discussion which followed, Drs. Shepherd, Martin, Finley, Mills, Adami, Garrow and McCrae took part.

DR. ADAMI: Thinking over what Dr. Primrose has told us this evening—the full presentation of his first case with its history of marked improvement following upon the operation, followed later by indications of disturbed kidney function, and the further evidence he has afforded us that experimental decapsulation of the kidney is followed by cicatrization of the surface and consequent destruction or injury to the cortical tubules—there has been recalled to me the definition I gave some years ago of inflammation, namely, that it is the attempt at repair of injury. I had then to point out that attempted repair and repair are two very different things, that inflammation, however benign, rarely accomplished the complete restoration of a part to its previous integrity; that the reaction was either in excess of the needs of the organism or inadequate. And what is true of inflammation must be true also of surgery and of our experimental attempts at repair, for, after all, what the surgeon accomplishes or attempts to accomplish is of the nature of a simple uncomplicated inflammation. The surgeon by his intervention cannot bring about an absolute return to the normal. And so it is with decapsulation of the kidney. We may hope that this will accomplish a temporary improvement, possibly by reduction of tension; we cannot expect that the tissue which comes to replace the capsule will be perfect. On the contrary, we must expect that, if formed of cicatricial connective tissue, it must, like all such cicatricial connective tissue, tend to contract. What has been so striking in this evening's paper is the calm and scientific way in

which the whole matter has been discussed. Remembering that Dr. Primrose was one of the pioneers in this operation, it would have been natural had he been carried away by enthusiasm. On the contrary, he has throughout endeavoured to determine the truth. He has given us an example of the methods of pure science applied to the clearing up of a surgical problem.

DR. FINLEY: Dr. Primrose's first case is convincing of the benefits which may accrue in certain cases. Personally, I have been rather prejudiced against the operation in chronic Bright's disease, and, consequently, I have not recommended very many cases for the performance of the operation. In one instance, Dr. Armstrong operated on a woman in middle life who had had oedema of the lids for several years. In this case the capsule was stripped on both sides at one sitting, and the woman has been free from the symptoms with which she previously suffered, but the character of the urine is not materially altered. In this case one of the kidneys was enlarged and, therefore, Dr. Primrose's view that it is the relief of tension which is brought about may probably apply. I think it is in acute cases where the kidney is strangled and certain other cases where there are attacks of temporary swelling that splitting or decapsulation will be of benefit. I quite agree with Dr. Primrose about the free use of calomel in Bright's disease; a few years ago one member of the hospital staff administered calomel to all his patients suffering from Bright's disease, and as a result most of them developed severe mercurial stomatitis.

DR. McCRAE: The only kind of case that surgeons are at one upon is the acute nephritis; the second class of cases, upon which they are almost agreed, is chronic nephritis in which there is high tension; these two have one thing in common, the ability to produce high tension. If a kidney can produce increased tension, it implies that that kidney has at its disposal more than half of its tubular epithelium still in a state of normal or nearly normal, which again brings the prognosis to the question of how much normal or nearly normal kidney one has to deal with; and success is obtained in those cases which are comparatively little damaged.

DR. MARTIN: A point which would interest one is to know whether one form of nephritis has been more benefited than another by the operative treatment. One is surprised to see one of the best American clinicians advocating that chronic parenchymatous nephritis is the only one benefited by operation, while another experienced surgeon says that improvement is only found in the chronic interstitial cases, and only so long as the capsule is not reformed around the kidney. That one should expect to get a cure in cases of nephritis of any kind seems

to me, from a pathological point of view, practically impossible; but that one may obtain very definite benefit Dr. Primrose has shown to be a very reasonable hope. Cases of hæmaturia are often cured by the mere operation of cutting down upon the kidney, not even cutting into it, a fact which is quite a common experience with almost every surgeon, though whether such instances are of the nature of organic disease or mere angio-neurotic hæmaturia has not been settled.

DR. PERRIGO: One point, upon which I take issue, is that of convulsions during pregnancy, I should be disposed to leave the kidney alone and empty the uterus, probably dealing with the kidney afterwards.

DR. MILLS: I have been much interested in Dr. Primrose's well knit scientific paper. With regard to the question of the dog, I may say that for some time I was not aware that dogs could have chronic kidney disease, but I had sent to me by a former student a very well marked case as far as the kidneys were concerned, and the only cause I could learn for the disease was excessive feeding of meat. As to how frequent these cases are I am unable to say. I suppose it was very natural that tension should be considered a very important factor to be relieved in kidney disease, and from what has been said, I cannot doubt that this is true. I think more at a former period than recently did we associate function and the blood pressure *per se*; but the tendency now is, I think, to explain secretion in the kidney more on vital than mechanical principles, and to lay greater stress upon the quantity of blood going through the organ than on the blood pressure; but that here, as elsewhere, blood pressure is an important factor in a good circulation. So that while it is still, of course, quite true that blood pressure and tension generally are closely related to nutrition, still it would seem to me to be rather too narrow a view to explain all possible results, good or evil, from this operation. The capsules which surround organs are elastic and they are protective, and I have no doubt that dilatation would take place and other injury to various organs if it were not for these capsules. They are a part of the environment, so to speak, and if you interfere with this you not only alter tension but expose a part not usually exposed. There is, therefore, a new series of stimuli given—protoplasm exposed to an entirely different environment, and it is known that merely cutting down on organs is followed sometimes by marked changes. It is said that even exposing a portion of the brain sometimes leads to the same results as actual interference with the part. I have never put this actually to the test; but, as it has usually been said that there is no explanation for the changes referred to, and this explanation of altered environment, vague though it be, is better than none at all.

When nature endeavours to replace what is normal to the organs as regenerative power is relatively weak in the higher animals, the results may be unsatisfactory. By altering the environment you get a benefit not only to the cells direct, but also from reflex influence; and it seems to me this last must not be left out in the explanation. So that if there be not a cause which is operating too strongly to counteract the effects of the possible good result from the change in the environment, it is likely there will be benefit; but, on the other hand there may be factors which lie far beyond, and no doubt are beyond the kidneys, and these will continue to operate on these organs under these new conditions, so that one would naturally expect a very great variety of results in such cases. Experiments on dogs in the laboratory cannot be more than suggestive, and the problem is one to be solved by experience. Surely the present is a bold movement, one worthy of some trial at least and a fair consideration, and I, for one, am very pleased to hear a subject like this discussed in such a cautious, scientific and thorough spirit.

DR. SHEPHERD: After congratulating Dr. Primrose on his excellent paper and expressing his appreciation, Dr. Shepherd said: "I do not think the case is yet proven, and the author himself also considers the question *en délibéré*. My experience extends to but one case and it was unilateral. The patient was referred to me by Dr. Lafleur and had been passing for some months a great deal of bloody urine with casts and albumin; stone was suspected, and Dr. Lockhart, having examined the bladder saw the blood coming from the right ureter and this proved, of course, that the right kidney was the one affected. I therefore exposed the right kidney, but failed to find any stone or anything abnormal, though there was some scarring on the surface. The capsule was incised and partially separated and the wound closed. From the day following the operation no more blood appeared, the albumin steadily diminished and casts were only occasionally seen. A year after the operation the patient was reported as being perfectly well, distinct benefit thus accruing from the operation. A great many surgeons advocate nephrotomy instead of decapsulation in these cases and often with good results. Dr. A. Ferguson, of Chicago, reports a great many cases of decapsulation performed with benefit to the patient, and he claims to have done this operation before Edebohls. Yet others have said that there were no good results following operation. Dr. Emil Reis reported a case of decapsulation followed by temporary improvement; later he had to remove the kidney for excessive hæmorrhage. There was a newly formed capsule around the kidney as thick as one's finger, and firmly attached all round; sections showed that the

capsule had no anastomosis with the kidney. The consensus of opinion is now that the beneficial result is due almost entirely to the lessening of tension. In a general disease like chronic Bright's, however, it is conceivable that only a temporary benefit could follow such a procedure. Dr. Primrose's paper, however, is of great help in throwing light upon this most difficult subject, which still requires further investigation.

DR. PRIMROSE: I must thank you for the kindly way in which you have received this paper. Enough has been said to show that we are pretty much all at one upon the subject. What Dr. McCrac has said is perfectly true, and regarding acute nephritis, I also agree with Dr. Martin; my view has always been that in acute parenchymatous nephritis operation is found to be of more advantage than in the interstitial form. Dr. Mills has stated very clearly the results of the environment and reflex action. With regard to Dr. Garrow's remarks on Morris's early cases, I think all he did was to give relief. The re-formation of the capsule undoubtedly occurs. I am pleased that Dr. Finley has also noticed the disadvantage of administering calomel in these cases. We can now show that a profound effect may be produced, but we do not understand the final result upon the kidney and its nephritis; that temporary relief is afforded, I think, is proved beyond all doubt, and that alone seems to me to justify operation. This being the case we must still further investigate before we can pronounce a definite opinion.